INTERIM SUBMITTAL

ENERGY SURVEY OF

EISENHOWER ARMY MEDICAL CENTER
FORT GORDON

AUGUSTA, GEORGIA

VOLUME III

FIELD INVESTIGATION NOTES

CONTRACT NO. DACA01-94-D-0038

PREPARED FOR:

U.S. ARMY CORPS OF ENGINEERS
SAVANNAH DISTRICT

PREPARED BY:

REYNOLDS, SMITH AND HILLS, INC.
AEROSPACE AND DEFENSE PROGRAM
4651 SALISBURY ROAD
JACKSONVILLE, FLORIDA 32256

PROJECT NO. 6941331005

MARCH 1996

DEPARTMENT OF THE ARMY
CONSTRUCTION ENGINEERING RESEARCH LABORATORIES, CORPS OF ENGINEERS
P.O. BOX 9005
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REPLY TO
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17 Sep 1997

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Marie Wakefield,
Librarian Engineering

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BUILDING DATA SHEET

Building ~~Energy Monitor~~: Eisenhower AMC Phone: 10/24/95

Building Number: 300 Age 1976

Construction Data:

Number of Floors 13 Areas: Floor 590,629 sf Roof 27,038 sf

Windows: # of panes 1 Storms — Blinds/drapes/tint Blinds & drapes

Condition, caulking, weatherstripping? W/S missing on N facing ext. doors

Wall construction? _____

Condition, caulking, weatherstripping? _____

Roof construction? _____

Condition? _____

U-Values: Walls _____ Roof _____ Glass _____

Areas: E Wall _____ W Wall _____ N Wall _____ S Wall _____

E Glass _____ W Glass _____ N Glass _____ S Glass _____

Access points: _____

Vestibules? _____

Loading dock door seals? Not necessary - separate doors to open dock

Areas with special requirements: _____

Modifications to original design: Numerous interior changes
Addition of MRI and Family Practice wings on East side of hospital

General Conditions/Comments/Problems:
Population 2800 total max 2000 during day 400 for each of other two shifts

2ND FLR ceil ht 9' - records - hallways 8'
MRI - 8' ceil - Fam Pract Offices 8'6"

BUILDING DATA SHEET (continued)

Schedules:

By floor or function : 5th - 13th 24 h/day

1st Labs are 24 h/day - remainder 7:30 - 4:00
2nd Radiology, Emerg., Info desk - 24 h/day
3rd SICU, Pharmacy, CMS (sterilization)
OR closes at 4PM but does emerg.
4th Closes at 4 PM

All AHU's op. continuously
0500 - 1900 ALL DAYS Cleaning out at 2300
Cafeteria 0545 - 1730 M-F WEH 0630 - 1300 Serving hrs.

Pneumatic tube 24 h/day - pharmacy user mainly
Power Selectimatic 129 - 2 tube send & receive -

Elevator Ten - 4 service 6 passenger - All solid state

Cleaning 4PM - midnight - supposed to turn off lights

Potential for night setback of space temperatures or AHU shut off
4th Floor

Can emergency generator be used for load shedding? 2100 kw & 800 kw
6:30 AM first Wed. of each month - Already done
800 kw parallels with - 2100 picks up

what electric loads can be shed?

BUILDING DATA NOTES

Survey by: _____ Date: _____

Notes & Comments:

- mentains ~ 50°F
- Econo - opens at ~50°F ? Ask Harold

968 T'STATS

BillgBths — electrician

Booster pumps are in 1A

FIRE ALARM SYSTEM IS FUNDED

KITCHEN SUPPLY FAN in 3-A tool crib

5th SW corner AHU loc.

~ 20 new supply fans in 1-3

5E is short on cap.

791-6376/4243 Cert's #

BUILDING DATA NOTES

Survey by: Paul Hutchins Date: 10/23/95

Notes & Comments: Jack Keath

Reviewed approved projects
Boiler economizers - remove
Chillers - replace + VSD CT Fans & SCWP
Beds 720 → 420

Will Upgrd EMCS in next 3 mos.
Jack Hangs at Boiler Plant

Ceert 791-4241/43/6376 8:00 - 4:30 - 5:00
Jack 787-3220/8165 6:00 - 5:00
Rob Callahan

Bldg 299 MRI Kenneth Cimrhen - Mech HVAC

2 DX Split systems for space cooling
#2 - TRANE - Mod # TTA090A300AA
Ser # E38191755 } Space Cooling
#1 TRANE - Mod # TTA036A300B0
Ser # E46295018 }
Liebert - Mod # FH199AUA00 } MRI Equip.
Ser # 142547A }

			Reading	Mode
Set	45%	1% Range	47	Deh.
	69°F	1° Range	71	Clg.

Mechanics
Harold - Controls John Lilly - Supervisor
Ken - HVAC

Economizers rarely work automatically - Usually done manually
Time clocks in Fan Pract but runs always because some Drs sleep there
~ 20 extra fans/coils added

BUILDING DATA NOTES

Survey by: P. Hutchens Date: 10/24/95

Notes & Comments: Bob Calhoun Johnson Controls Mgr.

800 KW gen. parallels utility can be man. brought on-line at any time (replaced 300 KW)

2100 KW gen. is used to handle two chillers, 10 elevators and several AHUs in loop.

- All TSTATs are pneumatic and control reheat boxes
- No central reporting system

Medical barracks taken off power meter ~ 12/94

Ask J.K. 2000KW gen

JK thinks the 2100 KW has a lot of life left
Not planned to parallel -
First replace existing one

Newcomb & Boyd Jeff Riser

John Langerone has boiler water treatment

Humidifiers - 5 MKW, 5th, Dental

Gordon Griffin -

BUILDING DATA NOTES

Survey by: Hutchins Date: 10/26/95

Notes & Comments:

Panel Reading 2nd FLR Mech Rm 8:10 AM

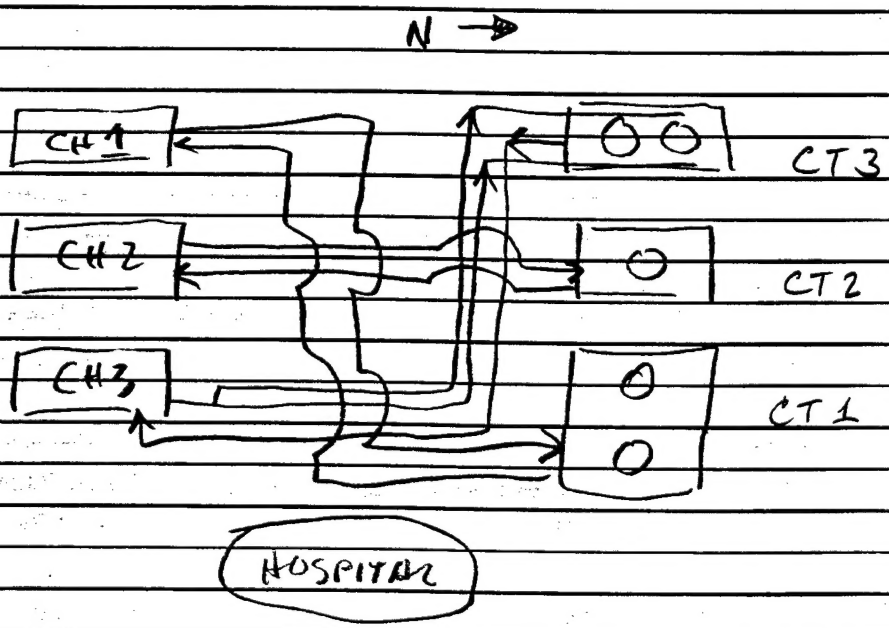
(1) SA 53 OA 44 (act 48) STM AP 80 psig
RA 77 CWR 47 LP 28 psig

(2) SA 51 OA 43 CWS 40 HWS 154
RA 76 CWR 47 HWR 140

OSA Dampers 25% open
RTU " 75% closed

Prob 30 ft of insulation missing on DHW line in 2nd FLR MECH RM.

Float valve still stuck open on Gen. cooling tower
Flow rate - fills small coffee cup in 2 sec.
Leaking since last visit ~ 1 month earlier



BUILDING DATA NOTES

Survey by: _____ Date: _____

Notes & Comments: (912) 652-5246 Rob Callahan

HW Reheat units

½" 3-way control valves
Kreuger Detroit Div
Lead - Siegler
Sige CVM-R4
190 cfm
V4054 4 row coil
Run 1A-23

BUILDING DATA (continued)

HVAC THERMOSTAT SETPOINTS (F), TEMPS, RELATIVE HUMIDITY (%RH) & LIGHT LEVELS (FC)

	Setpoints		Temps			
	Heat	Cool	Meas'd	RH	Ft Cndl	Location
1.		74	76	55		6TH FLOOR OUTSIDE Rm 6B01
2.		71	76	58		6TH FLOOR 6B56" OR.
3.		69	76	63	40	5TH ELEV. LOBBY (6)
4.			76	63		11 5C-13 (HOT LAST 3 Summers)
5.		74	80	51		4TH FL. MAIN LOBBY
6.					55	1ST Pathology Off.
7.					63	1ST Occupational Therapy
8.					13-29	2ND Hallways
9.						
10.						
11.			79		50	3RD Flr Kitchen
12.			72			3RD - Linen
13.					13-21	3RD Warehouse
14.		70	76			3RD - Warehouse office
15.					12	5B-17 Lockers / computers (Patient Rm)
16.					55-60	5B-31 Break Rm
17.					10	5B-53 office (Patient Rm)
18.	55		73/54	28	25-35	5B-46 Conference Rm
19.						
20.						

Lighting Type Examles:

	Fixture Type	Lamp Model	Ballast Model	Lamps/ Fixt	Hr/ Wk	Location
1.	1X4 W.R.	F40 CW	Adv. R2S40-1-TP	2		MECH RM
2.	2X4 Rec. Acryl	F40CW	Mark III Adv	4		Conf Rm - MRI
3.						
4.						
5.						
6.						
7.						
8.						

General Conditions/Comments/Problems:

BUILDING DATA (continued)

HVAC THERMOSTAT SETPOINTS (F), TEMPS, RELATIVE HUMIDITY (%RH) & LIGHT LEVELS (FC)

	Setpoints Heat	Setpoints Cool	Temps Meas'd	RH	Ft Cndl	Location
1.					1.5→34	1st Floor hallways (avg 23 fc)
2.						some lamps out cause low readings
3.					13	2nd Flr hallways (every other fixt. out)
4.					25	Other non de-lamped hallways
5.					28	2nd Floor lobby
6.			72.0		27	5th hallways
7.					8	" " with delamping
8.			73.5		7-10	6th hallways " "
9.					38	7th "
10.					29-30	8th "
11.					29-30	9th "
12.					34	10th " new T8
13.					35	11th "
14.			74.8		50	11th elevator lobby
15.					13-15	14th
16.			71-73		24	12th lobby & hallways
17.			79		33	13th Nurse's station
18.			72/53		103	2nd Fl Rm 16 Treatment F. Practice
19.			73/54		55-60	Family Practice waiting / reception area
20.					95/48	" " Office area; multi-switched
					4L 2L	77 Ft.cd w/2L and task lights at desk → 1-4' lamp

Lighting Type Examles:

	Fixture Type (2x4)	Lamp Model	Ballast Model	Lamps/ Fixt	Hr/ Wk	Location
1.	Small eggcrate	Octron 350K F32T35		2	168	10th FLR Hall
2.	2x2 Eggcrate	F40/30Bx/SPX35	MZ-RN-TB-40(1)	2	168	10th Fl Elv. Lobby
3.	2 lamp ind.	F40CW			168	14th
4.			Jeff. 300/9708801	2	168	11th
5.	4-2x4 w/ACR lens	F40CW	92 input watts	2pat ~64/65		3D-1 GG
6.						
7.						
8.						

General Conditions/Comments/Problems: (1) Motorola

Family Practice - 7:30 am - 9pm M-F, 8-12 sat, closed sunday

Exit signs w/ 2-15W inc. lamps + 2 emerg. lamps ~24 total

U-tube lamps are 34-W; 4' T12's are 34-W.

Office area can use 2 lamps overhead w/ task lights

BUILDING DATA (continued)

HVAC THERMOSTAT SETPOINTS (F), TEMPS, RELATIVE HUMIDITY (%RH) & LIGHT LEVELS (FC)

	Setpoints		Temps			
	Heat	Cool	Meas'd	RH	Ft Cndl	Location
1.	____	68	65	65	15.2	ELEV. MACH CONTROL RM (14)
2.	____	68	66	80	____	ELEV. 1-6 MACH CONT RM CONT (14)
3.	____	78	75	62	10.3	ELEV MACH RM (14)
4.	____	____	75	70	10.5	ELEV. LOBBY (13)
5.	____	76	____	____	____	E. NURSE STAT
6.	____	75	____	____	____	W " "
7.	____	____	74	70	15	12TH FLOOR ELEV - LOBBY
8.	____	72	____	____	____	12T " NURS STAT E
9.	____	79	75	78	____	" " " W ALL OFFICE
10.	____	75	78	74	50	11TH. FL ELEV LOBBY
11.	____	75	____	____	35	" HALLWAY
12.	____	60	78	82	____	10 TH. Rm 10C TOILET ANTI Rm
13.	____	____	____	____	____	2-INCAND. FIXT AIR RETURN.
14.	____	____	____	____	____	10C-10. 5-B. NEW
15.	____	7	75	62	____	9TH FL ELEV. LOBBY (6)
16.	____	74	____	____	____	9 FL. WEST
17.	____	72	78	60	____	8TH FL. WEST
18.	____	73	75	70	____	" " 80-39.
19.	____	____	75/55.5	____	10-55	2nd FL Records (Desks have task lights)
20.	____	____	____	____	____	____

Lighting Type Examles:

	Fixture Type	Lamp Model	Ballast Model	Lamps/ Fixt	Hr/ Wk	Location
1.	14 BARE	____	____	2	____	ELEV. MACH
2.	New 2x4 acrylic lens	F40 CW	MARK III Adv.	2	____	Records - 2ND FLR
3.	Older 2x4 acryl. lens	F40 CW	-	2	____	Records. "
4.	____	____	____	____	____	____
5.	____	____	____	____	____	____
6.	____	____	____	____	____	____
7.	____	____	____	____	____	____
8.	____	____	____	____	____	____

General Conditions/Comments/Problems:

WEST END 12TH F ALL OFFICE SPACE PART. RELOCATED
ALL CORR. LIGHTS ARE ON.
10TH ALL NEW FIXT SEE E-53 / NURSE STAT 4L PRISMATIC
9TH ALL CORR. FIXT ARE ON. 2L-2X4 PRISMATIC K12 LENSE
8TH E thermostat broken

BUILDING DATA NOTES

Survey by: F. M. Date: 10/25/95

Notes & Comments: Computer center. 1ST FL 68/95 66/49

THERM SET. 80 READ. 68

THERMOTE HANG. FROM CEIL. 68. 27-2X4-2C

Hot water measurements - bathrooms

9th Flr - 117°F

6th Flr - 115°F

5th Flr - 115°F

Lights on in unoccupied areas?

Locations 14th FLR MECH RM - LEFT ON

12TH KITCH UNIT, GROUP THERAPY LEFT ON

Need for separate switching?

Locations

Occupancy sensors for lights or HVAC?

Locations 9TH FL. 9B-06. LOUNGE 12-2L. 2X4, 4-2X2-2L U +TV

9A-54 NURSE MED. PREP. 5-2X4-2L

9A-53 LINEN. 5-2X4-2L.

10TH 10B-06 LOUNGE NEW 12-2L REC. OCTRON LAMPS

Hot water temperature and flow rate samples:

Locations

Flow restrictor application?

Locations

Automatic shut-off faucet application?

Locations

BUILDING DATA NOTES

Survey by: F. NEW Date: 10-27-95

Notes & Comments: ROOF ELEVATOR MACHINE ROOM ROOF
OUTSIDE A/C UNIT FOR ELEVATOR SOLID STATE CONTROLLER
EQUIPMENT ROOMS. WEST UNIT SERVES ELEV. 1-6
EAST UNIT SERVES ELEL 6-10.

CARRIER DX SER. No. 2692E 17377
MOD. No. 38TKB038300
FACT. CHARGE R22 6.38 LBS
COMP. 208/230V 1Φ
1HP 60HZ 17.1A
FAN. 1/4 HP 1.4A
" HIGH 450 PSI
" LOW 210 PSI

BUILDING DATA NOTES

Survey by: F. NEW Date: 10-25-95

Notes & Comments:

1. 2ND FLOOR PHARMACY LOBBY Rm 2C-1 175W MER. V
2. 4TH FLOOR LOBBY 4B-23 ALL RECESSED LENSED FIXT. HAVE 52W LAMPS
3. 3Rd STORAGE RM 3M-1 SUSP. FIX. 175. LB MER. V.
4. 4TH FLOOR LOBBY 4B-4 & OFFICESES ALONG SW + WEST SIDE OF BUILDING HAVE 175W MER. V.
5. NEW PATIENT FIXTURES (WALL MOUNTED WILL HAVE 4-40WT8 LAMPS. (PAIRS SWITCHED SEPARATELY.
6. Rm 1C-14 AUDITORIUM
   64- CIRCLINE 2L FIXT. 1-22W, 1-32W
   38 - INCAN. STAGE LAMPS
   11 -
   8- 52-WALL INCANDESCENT
   2 -2X4-2L F40CW RECESSED

BUILDING DATA NOTES

Survey by: _____ Date: 10/25/95

Notes & Comments:

Jim Pavlisek

Spot Cooling
First Flr Labs - 4

BUILDING DATA NOTES

Survey by: _____ Date: 10/27/95

Notes & Comments: Entrance Interview

Atlanta Gas Light Co.
Ian Skelton (706) 481-1484

Georgia Pwr. Co (706) 823-4532
Michael Richardson

Coli Plants

New equipment - growth factor for new elec equip.

Get copy of survey forms to Bob C.

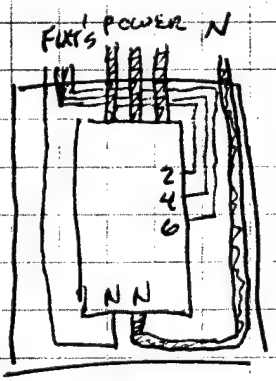
RS&H

SUBJECT _____ AEP NO _____
SHEET _____ OF _____
DESIGNER Hubbuch DATE 1/23/96
CHECKER _____ DATE _____

Harmonics Analysis ETMC

				At TM	
1	10th	FLR	Circuit 2	5.06	To Lighting Panel
2		"	Neutral (Large)	2.06 ~~3.16~~	9.16
3	11	"	~~Ltg~~ Circ 2	9.13	18.4 10RPZ & 11RPZ
4		"	Circ #4	5.06	22.8
5		"	#6	1.414	24.3
6		"	Large Neutral (Power feed)	3.64	109.2%
7		"	Small N (Lighting)	3.64	10.99
8	10th		Circ 4	6.93	19.0
9		"	Circ 6	4.31	12.7
10		"	Small Neutral	2.04	96.2

10th FLR = 25 2L fixtures 3 @ TM 2 stairwell, 1 elec closet
11th = 30 2L fixtures



← 277 volt

Panel RPZ

T8's Installed in corridors and patient room overbed fixtures - Corridors are 2x4 2L T8's (277v)
Overbed are 4ft box wall-mounted (120v)
4 lamps with 2 way switches to control 2 lamps at a time - Installed summer '95
All fixtures are new - ~~Doug~~ Did 8th flr in Dec. Will do 3 or 4 more floors next cal. yr
Expect to do all patient floors

Kitchen Equip.

10/26/95

Dishwasher:

Hobart Model FTM 822
First Wash at ~120°F
Final rinse at ~180-200°F

Steam Kettles:

5 Kettles ~ 30-40 gal each
35 psi steam requirement

Steam Ovens:

4 steamers (all small)
~1/2" steam pipe
15 psi steam required

Pots & Pans Washer:

150°F wash
180°F rinse
15-25 psi steam required

#1

AIR HANDLING UNIT DATA SHEET

#1
A234

AHU I.D. No.: SF-1 Location: 2nd Fl. Date: 10/24

Manufacturer Name: P/P Model: P490

AHU Characteristics : ORDER Serial #: AF8448

Supply: X Return X Exhaust: X Class: 3

Flow control? Constant X VSD ___ Inlet Guide Vanes ___ Other ___

Is motor in airstream? Supply X Return ___ No ___

Smoke detector? Y Smoke damper? O.A

Humidifier type None Condition ___

Economizer function? Yes Operating correctly? NO On temp. 55-56°F

Heat recovery potential? ___

Chilled water valves: 2-way ___ 3-way X Balancing valve ___

~~Hot water~~ Steam valves: 2-way X 3-way ___ Balancing valve ___

Coils: Preheat: ___ Cooling: ___ Heat: ___ Reheat: ___

Air Filter Type: Prefilter ___

After filter ___

55.1
56.5
56.1
56.0

Air Temp's: Design: OSA ___ Rtn ___ Mixed ___ LPrHt ___ LCC ___ LHC ___

Measured: OSA 74.5 Rtn ___ Mixed 78.6 LPrHt ___ LCC 55.1-56.5 LHC ___

Air Flows: Nameplate: CFM 69 000 S.P. 6.5 RPM 921?

Measured : CFM ___ S.P. 6.4 RPM 1067

Cooling capacity Tons: Design ___ Calculated ___

Heating capacity Tons: Design ___ Calculated ___

System description/Set points: ___

Operation schedule:/Set points: ___

Areas served: ___

Condition/Comments/Problems: ___

Motor: Lincguard dripproof, 404T, 100 hp, 230/460v, 240/120A.
Code: TV-2734-M, SN 905764, 1775 RPM

c. coils, some fins bent, middle missing

Sketch AHU (show measurements) ___

AH-1

#2

#231

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: SF-2 Location: 2nd Fl. Date: 10-24

Manufacturer Name: PEERLESS / PORTER Model: P542

AHU Characteristics : ~~Serial~~ ORDER #: AF8448

Supply: X Return X Exhaust: X Class: 3

Flow control? Constant X VSD ___ Inlet Guide Vanes ___ Other ___

Is motor in airstream? Supply X Return ___ No ___

Smoke detector? YES Smoke damper? OA.

Humidifier type None Condition ___

Economizer function? Yes Operating correctly? NO On temp. 55-56°F

Heat recovery potential? ___

Chilled water valves: 2-way ___ 3-way X Balancing valve ___

~~Hot water~~ Steam valves: 2-way X 3-way ___ Balancing valve ___

Coils: Preheat: X Cooling: X Heat: ___ Reheat: ___

Air Filter Type: Prefilter Roll

After filter Bag

Air Temp's: Design: OSA ___ Rtn ___ Mixed ___ LPrHt ___ LCC ___ LHC ___

Measured: OSA 65.5 Rtn 81.0 Mixed 78.0 LPrHt NA LCC 54.0 LHC NONE

Air Flows: Nameplate: CFM 74,000 S.P. 6.5 RPM 798

Measured : CFM ___ S.P. 5.7 RPM 880

Cooling capacity Tons: Design ___ Calculated ___

Heating capacity Tons: Design ___ Calculated ___

System description/Set points: ___

Operation schedule:/Set points: ___

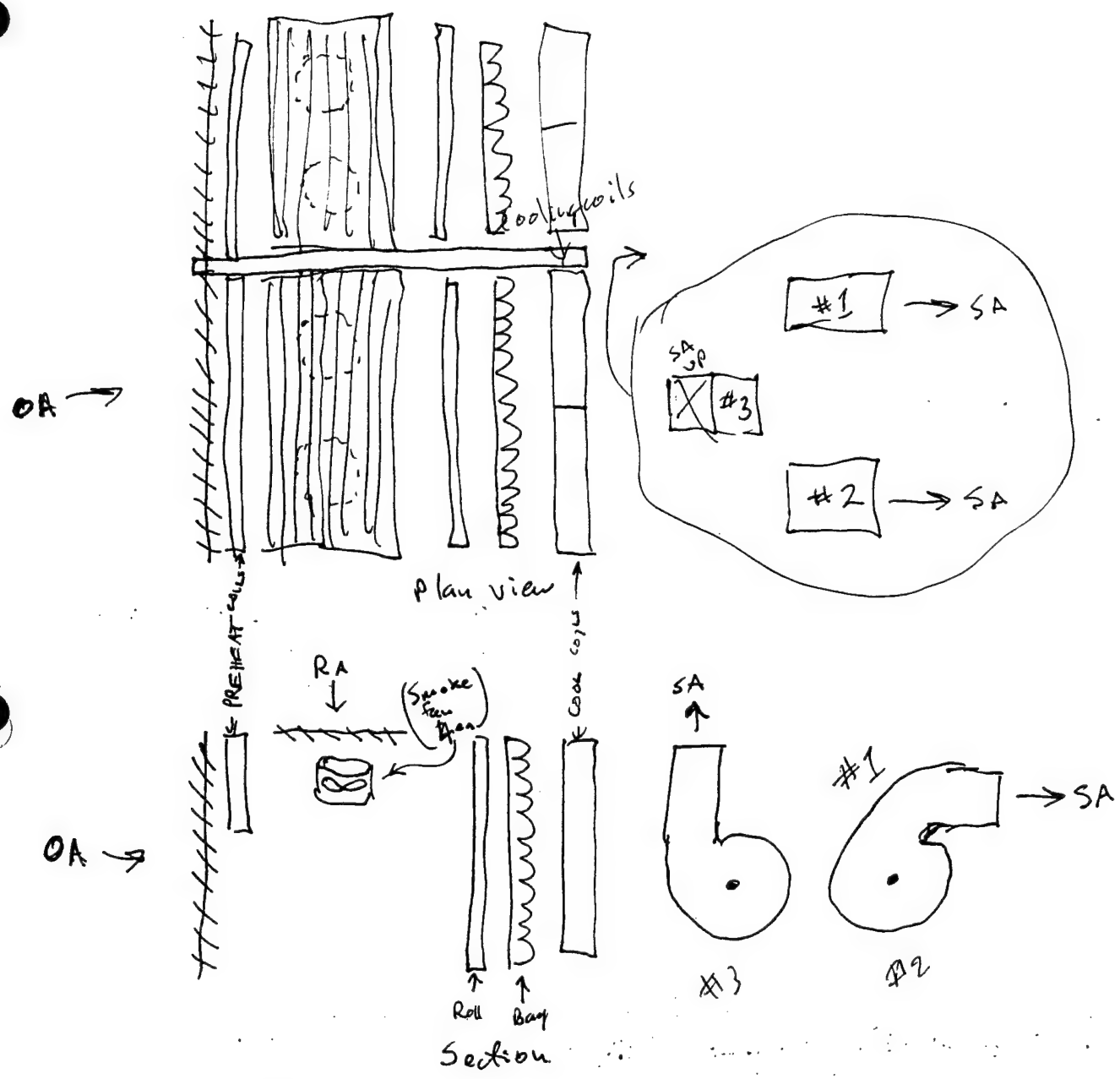
Areas served: ___

Condition/Comments/Problems: Roll Filters (2 of 3) are very dirty, bag filters apear dirty. Coils are fairly clean.

Motor: Lincgard dripproof, 100 hp, 1775rpm, 230/460V, 240/120A

code TV 2734-A1, SN 9D5733

Sketch AHU (show measurements) AH-2



CALC OA % = 19.4

AHU 1, 2, 3

#3

AIR HANDLING UNIT DATA SHEET

#3
#232

AHU I.D. No.: SF-3 Location: 2nd Fl. Date: 10/24

Manufacturer Name: P/P Model: P 490

AHU Characteristics : ~~Serial~~ ORDER #: AF8448

Supply: X Return X Exhaust: X Class: 3

Flow control? Constant X VSD ____ Inlet Guide Vanes ____ Other ____

Is motor in airstream? Supply X Return ____ No ____

Smoke detector? Y Smoke damper? O.A

Humidifier type None Condition ____

Economizer function? Yes Operating correctly? NO On temp. ~55-56°F

Relay or actuators not working properly - RA only

Heat recovery potential? ____

Chilled water valves: 2-way ____ 3-way ____ Balancing valve ____

~~Hot water~~ Steam valves: 2-way ____ 3-way ____ Balancing valve ____

Coils: Preheat: ____ Cooling: ____ Heat: ____ Reheat: ____

Air Filter Type: Prefilter ____

After filter ____

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Air Flows: Nameplate: CFM 61000 S.P. 6.5 RPM 886

Measured : CFM ____ S.P. 6.6 RPM 1069

Cooling capacity Tons: Design ____ Calculated ____

Heating capacity Tons: Design ____ Calculated ____

System description/Set points: ____

Operation schedule:/Set points: ____

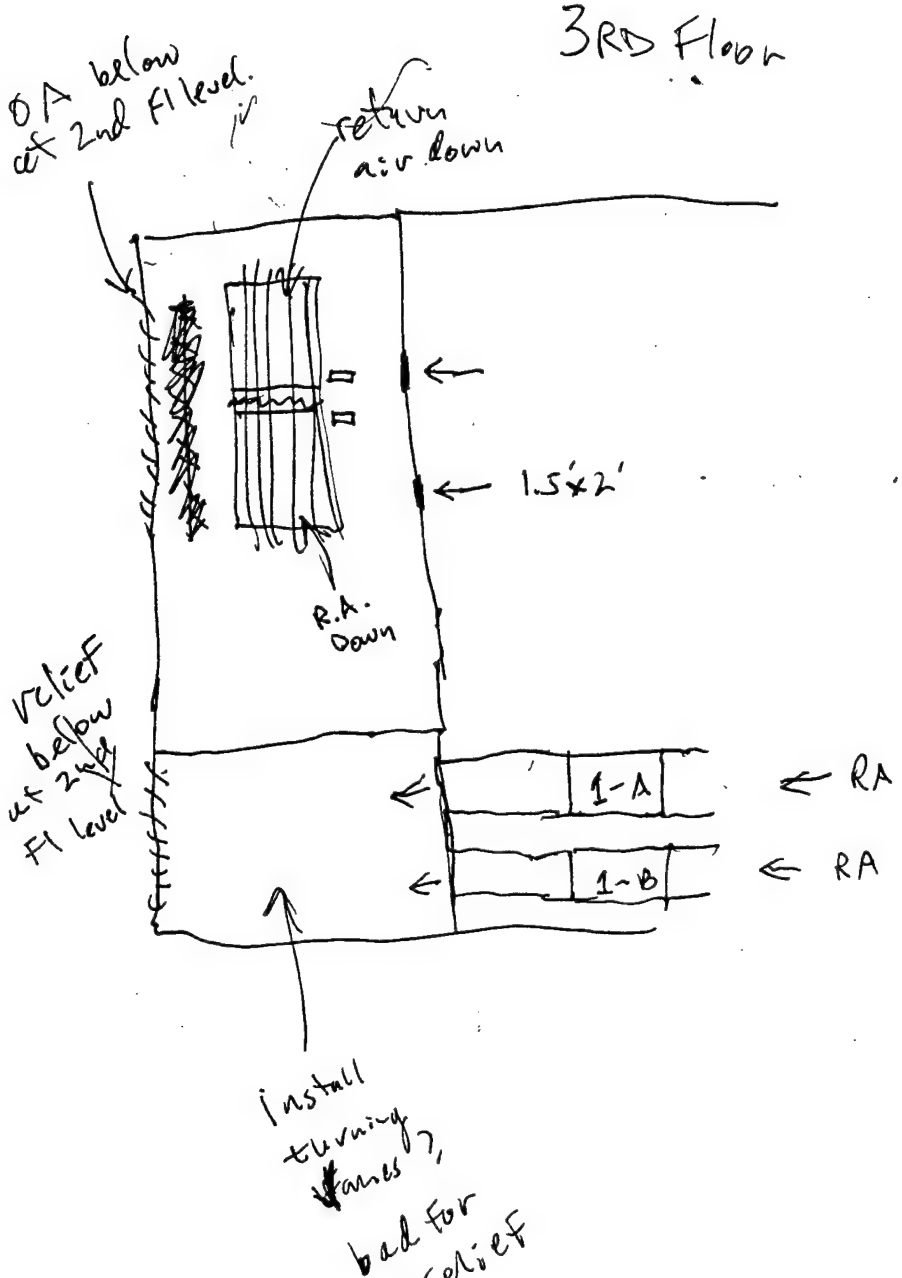
Areas served: ____

Condition/Comments/Problems: ____

Motor: Lincoln, LINGUARD DRIPPROFF, 404T, 100 hp, 230/460v, 238/119A
1770 RPM, SF=1.15, Code TV-3420-A1, SN 2243351

Sketch AHU (show measurements) AH-4

SF-3


3RD Floor
OA below at 2nd Fl level.
return air down
1.5'x2'
R.A. Down
relief below at 2nd Fl level
1-A
RA
1-B
RA
install turning vanes?, bad for relief

Return Fan for #1, 2 & 3

1-A

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: RA-1 Location: 3RD Fl. Date: 10/24

Manufacturer Name: P/P Model: 60

AHU Characteristics : ~~Serial~~ ORDER #: AF 8464

Supply: ____ Return ____ Exhaust: ____

Flow control? Constant X VSD ____ Inlet Guide Vanes ____ Other ____

Is motor in airstream? Supply ____ Return ____ No ____

Smoke detector? ____ Smoke damper? ____

Humidifier type ____ Condition ____

Economizer function? ____ Operating correctly? ____ On temp. ____

Heat recovery potential? ____

Chilled water valves: 2-way ____ 3-way ____ Balancing valve ____

Hot water valves: 2-way ____ 3-way ____ Balancing valve ____

Coils: Preheat: ____ Cooling: ____ Heat: ____ Reheat: ____

Air Filter Type: Prefilter ____

After filter ____

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Air Flows: Nameplate: CFM 61000 S.P. 2.0 (AF) RPM 784

Measured : CFM ____ S.P. ~~+0.4~~ / 1.40 (OF) RPM ____

Cooling capacity Tons: Design ____ Calculated ____ 1.4 - 0.4 =

Heating capacity Tons: Design ____ Calculated ____

System description/Set points: ____

Operation schedule:/Set points: ____

Areas served: ____

Condition/Comments/Problems: Dampers at closed position

Sketch AHU (show measurements) AH-6

Return Fan for #1, 2 & 3

1-B

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: RA-1 Location: 3rd fl Date: _____

Manufacturer Name: P/P Model: 60

AHU Characteristics : ORDER ~~Serial~~ #: AF 8464

Supply: ____ Return ____ Exhaust: ____

Flow control? Constant ____ VSD ____ Inlet Guide Vanes ____ Other _____

Is motor in airstream? Supply ____ Return ____ No ____

Smoke detector? ____ Smoke damper? ____

Humidifier type _____ Condition _____

Economizer function? ____ Operating correctly? ____ On temp. _____

Heat recovery potential? _____

Chilled water valves: 2-way ____ 3-way ____ Balancing valve ____

Hot water valves: 2-way ____ 3-way ____ Balancing valve ____

Coils: Preheat: ____ Cooling: ____ Heat: ____ Reheat: ____

Air Filter Type: Prefilter _____

After filter _____

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Air Flows: Nameplate: CFM 61000 S.P. ~~AF~~ 2.0 ~~BF~~ RPM 784

Measured : CFM _____ S.P. +.65 / 1.27 RPM _____

1.27 - 0.65 =

Cooling capacity Tons: Design _____ Calculated _____

Heating capacity Tons: Design _____ Calculated _____

System description/Set points: _____

Operation schedule:/Set points: _____

Areas served: _____

Condition/Comments/Problems: Dampers ~ 25% open

Sketch AHU (show measurements) AH-7

SF-4A

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: 236 Location: 14TH (EAST) Date: 10/24/95

Manufacturer Name: Peerless Model: P542 SF-4

AHU Characteristics : Serial #: AF 8448

Supply: X Return X Exhaust: X

Flow control? Constant X VSD ___ Inlet Guide Vanes ___ Other ___

Is motor in airstream? Supply ___ Return X No ___

Smoke detector? ___ Smoke damper? ___

Humidifier type None Condition ___

Economizer function? YES Operating correctly? NO On temp. 50°F

Heat recovery potential? ___

Chilled water valves: 2-way ___ 3-way X Balancing valve ___

~~Hot water~~ Steam valves: 2-way X 3-way ___ Balancing valve ___

Coils: Preheat: ✓ Cooling: ✓ Heat: ___ Reheat: ___

Air Filter Type: Prefilter ROLL; 2" Thick } ΔP = 0.40
After filter BAG. }

Air Temp's: Design: OSA ___ Rtn ___ Mixed ___ LPrHt ___ LCC ___ LHC ___

Measured: OSA 64.8 Rtn 75.6 Mixed 72.5 LPrHt ___ LCC 56.5 LHC ___

Air Flows: Nameplate: CFM 83000 S.P. 7.0 RPM 847

Measured : CFM ___ S.P. 5.5 RPM 890

Cooling capacity Tons: Design ___ Calculated ___

Heating capacity Tons: Design ___ Calculated ___

System description/Set points: ___

Operation schedule:/Set points: ___

Areas served: ___

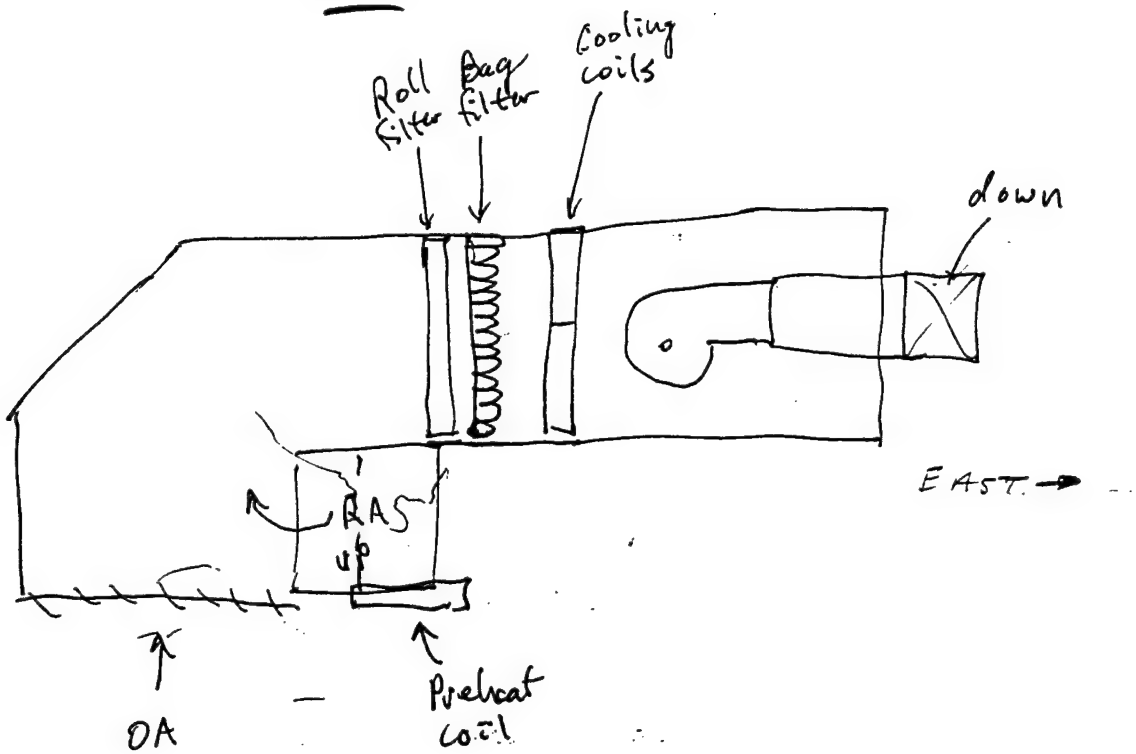
Condition/Comments/Problems: Cooling coils fairly clean - some dust, some bent fins
Motor 125 hp, 292/146A, 230/460V, 1779 RPM, SF=1.15
Cont., Dripproof

1 damper blade missing from O.A. & Relief air dampers

Sketch AHU (show measurements) See back

AH-8

SF 4A



PLAN VIEW

CALC DA = 28.7%

AIR HANDLING UNIT DATA SHEET

RE-AD.

AHU I.D. No.: RA-2A Location: 14th Fl EAST Date: 10-24-95

Manufacturer Name: PEERLESS Model: 60

AHU Characteristics : Serial #: _____

Supply: ____ Return ____ Exhaust: ____

Flow control? Constant ____ VSD ____ Inlet Guide Vanes manual X Other _____

Is motor in airstream? Supply ____ Return ____ No X

Smoke detector? ____ Smoke damper? ____

Humidifier type _____ Condition _____

Economizer function? ____ Operating correctly? ____ On temp. _____

Heat recovery potential? _____

Chilled water valves: 2-way ____ 3-way ____ Balancing valve ____

Hot water valves: 2-way ____ 3-way ____ Balancing valve ____

Coils: Preheat: ____ Cooling: ____ Heat: ____ Reheat: ____

Air Filter Type: Prefilter _____

After filter _____

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Air Flows: Nameplate: CFM _____ S.P. -1.0/-0.2 RPM _____

Measured : CFM _____ S.P. _____ RPM _____

Cooling capacity Tons: Design _____ Calculated _____

Heating capacity Tons: Design _____ Calculated _____

System description/Set points: _____

Operation schedule:/Set points: _____

Areas served: _____

Condition/Comments/Problems: _____

Manual VIV's are ~~on lowest~~ on maximum setting.

Sketch AHU (show measurements) AH-10

AIR HANDLING UNIT DATA SHEET

SF-4B

AHU I.D. No.: #235 Location: 14th Fl - West Date: 10-24-95

Manufacturer Name: PEERLESS Model: P542 ; CL#3

AHU Characteristics : Serial #: AF8448

Supply: X Return X Exhaust: X

Flow control? Constant X VSD ___ Inlet Guide Vanes ___ Other ___

Is motor in airstream? Supply X Return ___ No ___

Smoke detector? Yes Smoke damper? ___

Humidifier type None Condition ___

Economizer function? Yes Operating correctly? NO On temp. 200F

Heat recovery potential? ___

Chilled water valves: 2-way ___ 3-way X Balancing valve ___

~~Hot water~~ Steam valves: 2-way X 3-way ___ Balancing valve ___

Coils: Preheat: ✓ Cooling: ✓ Heat: ___ Reheat: ___

Air Filter Type: Prefilter ~~Bag~~ 2" thick Roll } ΔP = 0.45

After filter Bag

Air Temp's: Design: OSA ___ Rtn ~~Mixed~~ Mixed ___ LPrHt ___ LCC ___ LHC ___

Measured: OSA 71.9 Rtn 76.0 Mixed 74.5 LPrHt ___ LCC 55.6 LHC ___

Air Flows: Nameplate: CFM 83000 S.P. 7.0 RPM 847

Measured : CFM ___ S.P. 5.75 RPM 876

Cooling capacity Tons: Design ___ Calculated ___

Heating capacity Tons: Design ___ Calculated ___

System description/Set points: ___

Operation schedule:/Set points: ___

Areas served: ___

Condition/Comments/Problems: cooling coils are dusty, some bent fins

Motor Lincoln, 125 hp, 1770 RPM, 288/144 A, 230/460 V

nema nom eff = 93.6, 405 T, LINGGUARD DRIPPROOF

Relief Air damper linkage is coming loose from wall - will not open

O.A. Dampers will not fully open

Sketch AHU (show measurements) same as east unit but oppsite hand

AH-11

VIV max open

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: RA-2B Location: 14th Fl. West Date: 10-24-95

Manufacturer Name: PEERLESS Model: 60; P.N. 1●5001/RA-2

AHU Characteristics : Serial #: ORDER # AE8464

Supply: ____ Return ____ Exhaust: ____

Flow control? Constant ____ VSD ____ Inlet Guide Vanes (manual) X Other ____

Is motor in airstream? Supply ____ Return ____ No ____

Smoke detector? ____ Smoke damper? ____

Humidifier type ____ Condition ____

Economizer function? ____ Operating correctly? ____ On temp. ____

Heat recovery potential? ____

Chilled water valves: 2-way ____ 3-way ____ Balancing valve ____

Hot water valves: 2-way ____ 3-way ____ Balancing valve ____

Coils: Preheat: ____ Cooling: ____ Heat: ____ Reheat: ____

Air Filter Type: Prefilter ____

After filter ____

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Air Flows: Nameplate: CFM 6500 S.P. 1.75 RPM 771

Measured : CFM ____ S.P. -1.0/0.0 RPM ____

Cooling capacity Tons: Design ____ Calculated ____

Heating capacity Tons: Design ____ Calculated ____

System description/Set points: ____

Operation schedule:/Set points: ____

Areas served: ____

Toshiba B030 4VLF1UD 80/40 A

Condition/Comments/Problems: Motor: 30 hp, 286T, 3ph, 1760 RPM, 230/460 V, 1.15 SF

Fan Dampers wide open; rpm measured ~1690-1730

relief dampers above RA duct slightly cracked open

Sketch AHU (show measurements)

#233

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: SF-5 Location: 5th Fl. Date: 10/25

Manufacturer Name: Covered w/ insulation Model: _____

AHU Characteristics : Serial #: _____

Supply: X Return ____ Exhaust: ____

Flow control? Constant X VSD ____ Inlet Guide Vanes ____ Other _____

Is motor in airstream? Supply ____ Return ____ No X

Smoke detector? ____ Smoke damper? ____

Humidifier type _____ Condition _____

Economizer function? ____ Operating correctly? ____ On temp. _____

Heat recovery potential? _____

Chilled water valves: 2-way ____ 3-way X Balancing valve ____

~~Hot water~~ Steam Humidifier valves: 2-way ____ 3-way ~~X~~ X Balancing valve ____

Coils: Preheat: ____ Cooling: X Heat: ____ Reheat: X

Air Filter Type: Prefilter Roll

After filter BAG

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA 66 Rtn NA Mixed 73.1 LPrHt ____ LCC 52.0 ~~LHC~~ Fan 55.8

Air Flows: Nameplate: CFM _____ S.P. _____ RPM _____ Covered w/ Insulation

Measured : CFM _____ S.P. 5.6 RPM 1731

Cooling capacity Tons: Design _____ Calculated _____

Heating capacity Tons: Design _____ Calculated _____

System description/Set points: Multi zone (18 zones?)

Operation schedule:/Set points: _____

Areas served: ICU & ORAL SURGERY

Condition/Comments/Problems: _____

Motor: 20hp, 1755 RPM, 230/460V, 50.2/25.1A,

Sketch AHU (show measurements) AH-13

#234

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: SF-6 Location: 3rd Fl. Date: 10/25

Manufacturer Name: P/P Model: P330 DWDI

AHU Characteristics : Serial #:

Supply: X Return ____ Exhaust: X

Flow control? Constant X VSD ____ Inlet Guide Vanes ____ Other ____

Is motor in airstream? Supply X Return ____ No ____

Smoke detector? ____ Smoke damper? ____

Humidifier type steam Condition OK

Economizer function? No Operating correctly? ____ On temp. ____

100% outside air

Heat recovery potential? ____

steam preheat : 2-way

Chilled water valves: 2-way ____ 3-way X Balancing valve ____

steam Humidifier

~~Hot water~~ valves: 2-way [redacted] 3-way X Balancing valve ____

Coils: Preheat: X Cooling: X Heat: ____ Reheat: X

Air Filter Type: Prefilter Roll

After filter Bag → 97% after humidifiers

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA 78.7 Rtn NA Mixed 77.3 LPrHt NA LCC 57.3 LHC ____

Air Flows: Nameplate: CFM 27000 S.P. 6.75 RPM 1363

Measured : CFM ____ S.P. 5.5 RPM 1467

Cooling capacity Tons: Design ____ Calculated ____

Heating capacity Tons: Design ____ Calculated ____

System description/Set points: ____

Operation schedule:/Set points: humidity controls set to ~ 40% RH.

Areas served: Surgical Suite

Condition/Comments/Problems: Planned renovations include: rebuild fan, new fan motor, new VFD for fan/motor, new cooling coils, new preheat coils to be located at AHU instead of OA intake.

Sketch AHU (show measurements) AH-14

Renovation to surgical suite AHU

Rebuild Fan ✓
New motor ✓
New VFD on motor ✓

New cooling coils ✓
New preheat coils (at unit) ✓

Kitchen Makeup air

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: MUA Location: 3rd Fl. Date: 10/25

Manufacturer Name: P/P Model: P 490 SWSI

AHU Characteristics : ~~Serial~~ ORDER #: AF844B

Part No.: MAKE UP AIR

Supply: X Return ____ Exhaust: ____ Class: 1

Flow control? Constant ____ X ____ VSD ____ Inlet Guide Vanes ____ Other ____

Is motor in airstream? Supply ____ Return ____ No X wide open (100%)

Smoke detector? ____ Smoke damper? ____

Humidifier type ____ Condition ____

Economizer function? ____ Operating correctly? ____ On temp. ____

Heat recovery potential? ____

Chilled water valves: 2-way ____ 3-way ____ Balancing valve ____

~~Hot water~~ Steam valves: 2-way X 3-way ____ Balancing valve ____

Coils: Preheat: X Cooling: ____ Heat: ____ Reheat: ____

Air Filter Type: Prefilter Roll → filters very dirty

After filter Bag

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____ 66°F

Air Flows: Nameplate: CFM 32000 S.P. 2.5 RPM 684

Measured : CFM ____ S.P. 2.8 RPM 795

Cooling capacity Tons: Design ____ Calculated ____

Heating capacity Tons: Design ____ Calculated ____

System description/Set points: Field erected unit, draw through, heating only, w steam coil (12 psi, read on gauge)

Operation schedule:/Set points: ____

Areas served: Kitchen

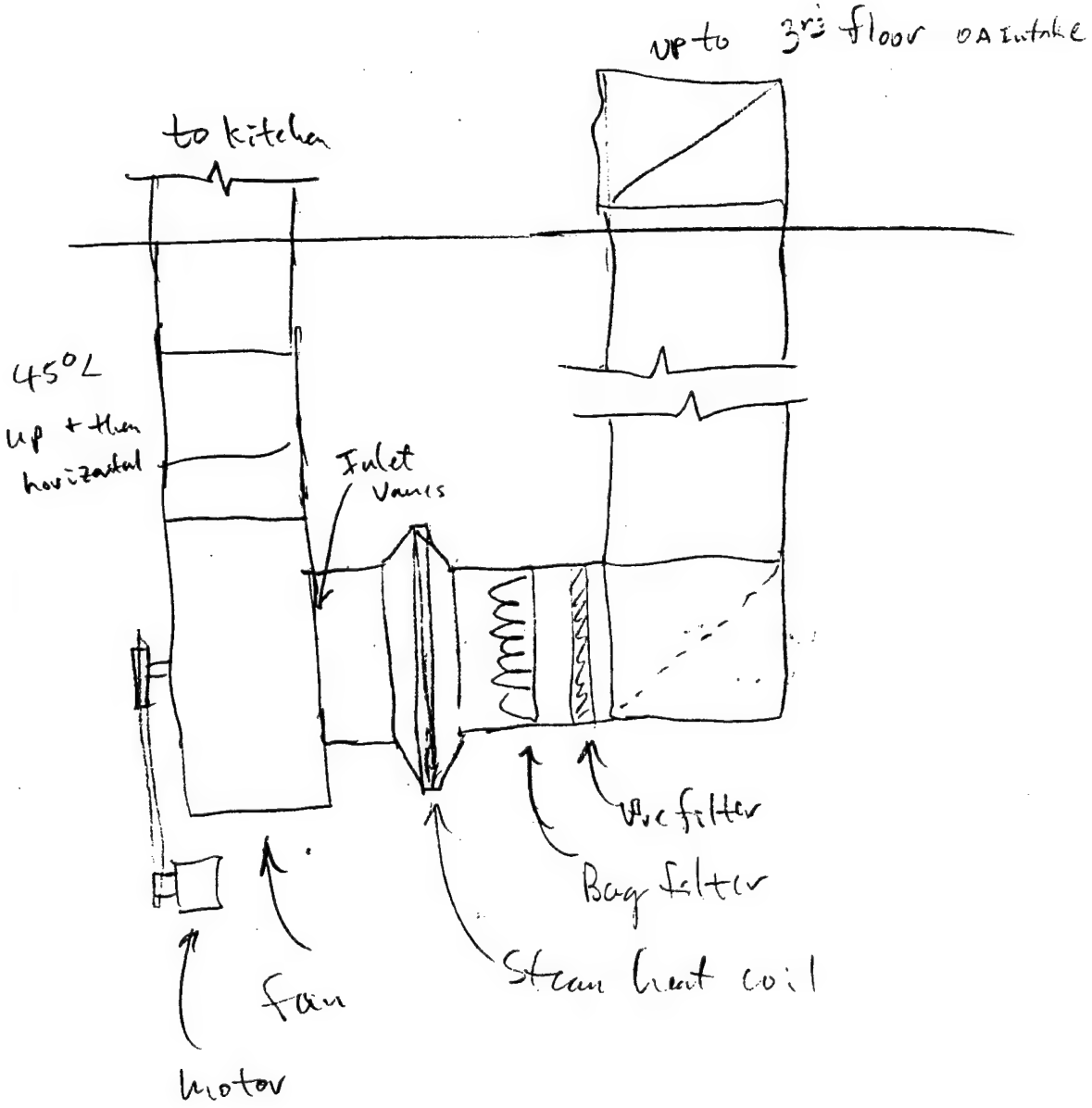
Condition/Comments/Problems: Some dampness at base of htg coil may have a leak

Motor: Lincoln, TEFC, 20 hp 1750 RPM, 230/460 V, 50/25 A eff = 86.5, 256T → bearings bad replaced with Magnetek, 230/460 V 49.2/24.6 A, 1740 Rpm, PF = 88.0, eff = 87.5

heating coils are dirty, some fins missing where leaks were repaired — overall condition = Fair +

Sketch AHU (show measurements)

KITCHEN MAU


up to 3rd floor OA intake
to kitchen
45° L
up + then horizontal
Inlet Vanes
Vee filter
Bag filter
Steam heat coil
fan
motor

#219

Kitchen Exhaust Air

AIR HANDLING UNIT DATA SHEET

AHU I.D. No.: EF-7 Location: 3rd Fl. Date: 10/25

Manufacturer Name: AAF Model: TYPE W ROTO-CLONE

AHU Characteristics : EXHAUST/DUST COLLECTOR Serial #: W 720108

Supply: ____ Return ____ Exhaust: X Arrangement: A Size: 36

Flow control? Constant X VSD ____ Inlet Guide Vanes ____ Other ____

Is motor in airstream? Supply ____ Return ____ No X

Smoke detector? ____ Smoke damper? ____

Humidifier type ____ Condition ____

Economizer function? ____ Operating correctly? ____ On temp. ____

Heat recovery potential? ____

Chilled water valves: 2-way ____ 3-way ____ Balancing valve ____

Hot water valves: 2-way ____ 3-way ____ Balancing valve ____

Coils: Preheat: ____ Cooling: ____ Heat: ____ Reheat: ____

Air Filter Type: Prefilter ____

After filter ____

Air Temp's: Design: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Measured: OSA ____ Rtn ____ Mixed ____ LPrHt ____ LCC ____ LHC ____

Air Flows: Nameplate: CFM ____ S.P. ____ RPM ____

Measured : CFM ____ S.P. ~~4.05~~ BF 0.45 AF RPM 615

Cooling capacity Tons: Design ____ Calculated ____

Heating capacity Tons: Design ____ Calculated ____

System description/Set points: ____

Operation schedule:/Set points: ____

Areas served: ____

Condition/Comments/Problems: WATER/DUST COLLECTOR APPEARS TO BE OFF

Motor: 100hp, Louis Allis/Page maker, 230/460V, 234/117A, 1730 RPM

Sketch AHU (show measurements) AH-18

ELECTRIC MOTOR DATA SHEET

(234)

Equipment ID. SF-1 Location: Rm 2A-1 Function: AHU Date: 10/24

Nameplate Data: HP 100 Frame 404T

Volts 460 Amps 120 Phases 3 PF 0.8 kW (1) _____ Eff ~93.5 RPM 1775

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

_____

_____

_____

_____

_____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

_____

_____

_____

_____

_____

ELECTRIC MOTOR DATA SHEET

(231)

Equipment ID. SF #2 Location: 2nd fl. RM #2A-1 Function: AHU Date: 10/24

Nameplate Data: HP 100 Frame 404T

Volts 460 Amps 120 Phases 3 PF .8 kW (1) _____ Eff ~93.5 RPM 1800

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

(232)

Equipment ID. SF #3 Location: 2nd fl. RM. #2A-1 Function: AHU Date: 10/24

Nameplate Data: HP 100 Frame 404T

Volts 460 Amps 120 Phases 3 PF .8 kW (1) _____ Eff 93.5 RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. 1A Location: 3A01 Function: RETURN Date: 10/25/95

Nameplate Data: HP ____ Frame ____

Volts 460 Amps 37 Phases 3 PF 0.85 kW (1) 25.1 Eff ____ RPM ____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases 3 kW 15.8 RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: Cont. Hrs/Wk ____

General condition/comments/Problems: ____

Reading A = 5.6 + Reading B = 10.2 = 15.8

Equipment ID. 1B Location: 3A-1 Function: Rtn Fan Date: 10/25

Nameplate Data: HP 30 Frame 286T

Volts 460 Amps 40 Phases 3 PF 0.85 kW (1) ____ Eff ____ RPM ____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases 3 kW 23.4 RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: ____ Hrs/Wk ____

General condition/Comments/Problems: ____

Reading A = 7.2 kW + B = 16.2 kW = 23.4 kW

ELECTRIC MOTOR DATA SHEET

SF-6
Equipment ID. #234 Location: Rm 30-2 Function: Supply FAN Date: 10/25

Nameplate Data: HP 40 Frame 234T

Volts 460 Amps 52 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1775

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

SF-5
Equipment ID. #154 Location: Rm 5B-22 Function: Supply FAN Date: 10/25

Nameplate Data: HP 20 Frame 256T

Volts 460 Amps 25.2 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1755

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

SF-4A (EAST)

Equipment ID. #236 Location: 14th FLR E Function: AHU Supply E. Tower Date: 10/25

Nameplate Data: HP 125 Frame 405T

Volts 460 Amps 146 Phases 3 PF .8 kW (1) _____ Eff 93.6 RPM 1775

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

SF-4B (WEST)

Equipment ID. #235 Location: 14th FLR W Function: AHU Supply W. Tower Date: 10/25

Nameplate Data: HP 125 Frame 405T

Volts 460 Amps 144 Phases 3 PF .8 kW (1) _____ Eff 93.6 RPM 1770

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. RF-2B (WEST) Location: 14th FL WEST Function: Return Date: 10/25

Nameplate Data: HP 30 Frame 284T

Volts 460 Amps ____ Phases 3 PF ____ kW (1) ____ Eff ____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) 1690-1730

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: ____ Hrs/Wk ____

General condition/comments/Problems: ____

Equipment ID. ____ Location: ____ Function: ____ Date: ____

Nameplate Data: HP ____ Frame ____

Volts ____ Amps ____ Phases __ PF ____ kW (1) ____ Eff ____ RPM ____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: ____ Hrs/Wk ____

General condition/Comments/Problems: ____

ELECTRIC MOTOR DATA SHEET

Equipment ID. Exh #15 Location: 3rd FL Warehse Function: Exhaust Date: 10/25

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW 2.55 RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

A = 1.15 + B = 1.4 = 2.55 kw

Equipment ID. Exh. #13 Location: 3rd FL Wareh. Function: Exhaust Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW 3.7 RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

1.2 + 2.5 = 3.7KW

ELECTRIC MOTOR DATA SHEET

Equipment ID. Exh #14 Location: 3rd FLR W'HSE Function: Exhaust Date: 10/25

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases 3 PF _____ kW (1) 0.75 Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Reading A = 0.55 + Reading B = 0.75 kW

Equipment ID. Exh #16 Location: 3rd FLR Wareh. Function: Exhaust Date: 10/25

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases 3 kW 4.0 RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: Cont. Hrs/Wk _____

General condition/Comments/Problems: _____

Read A = 1.2 + Read. B = 2.8 = 4.0 KW

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Rm 3A-1 Function: KIT. EXH. Date: 10/25/95

Nameplate Data: HP 100 Frame 405T

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: Rm 3A-1 Function: K. MAKE-UP Date: 10/25/95

Nameplate Data: HP 20 Frame 256T

Volts 460 Amps 25 Phases 3 PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. EF-4 Location: 14TH FL. TOP AHU Function: EXHAUST Date: 10/25

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 21 Phases 3 PF .8 kW (1) _____ Eff 87.5 RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

EF-1 (WEST)

Equipment ID. #173 Location: Top of AHU 14th fl Function: Exh. Fan Date: 10/25

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.8 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. EF-3 Location: Top of AHU 14th fl. Function: Exh. Fan Date: 10/25

Nameplate Data: HP 2 Frame 145T

Volts 460 Amps 2.8 Phases __ PF _____ kW (1) _____ Eff _____ RPM 1740

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. EF-2 (EAST) Location: 14TH FL. TOP AHU Function: EXH. Fan Date: 10/25

Nameplate Data: HP 7.5 Frame 213T

Volts 460 Amps 10.2 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. RF-2A (EAST) Location: 14TH FL. TOP AHU Function: INLINE RETURN Date: 10/25

Nameplate Data: HP 30 Frame 286T

Volts 460 Amps 40 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1765

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Nema C motor

ELECTRIC MOTOR DATA SHEET

EF-8

Equipment ID. 162 Location: 2nd fl. Rm. #2A1 Function: Exh. Fan Date: 10/25

Nameplate Data: HP 15 Frame 184T

Volts 460 Amps 7 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1730

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

(WEST)

Equipment ID. EF-1 Location: Roof Function: Exhaust Date: 10/25

Nameplate Data: HP 3/4 Frame 48Z

Volts 115 Amps 5 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1725

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

_____

_____

_____

_____

_____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

_____

_____

_____

_____

_____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #250 Location: 1st FL. M/E Rm Function: CW Booster P. Date: 10/25

Nameplate Data: HP 50 Frame 326T Code g

Volts 460 Amps 59.5 Phases __ PF ____ kW (1) ____ Eff ____ RPM ____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: ____ Hrs/Wk ____

General condition/comments/Problems: Discharge press. - no gauge

Equipment ID. #251 Location: 1st Fl. M/E Rm Function: CW Booster P. Date: 10/25

Nameplate Data: HP 50 Frame 326T Code g

Volts 460 Amps 59.5 Phases 3 PF .8 kW (1) ____ Eff ____ RPM 1765

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: ____ Hrs/Wk ____

General condition/Comments/Problems: ____

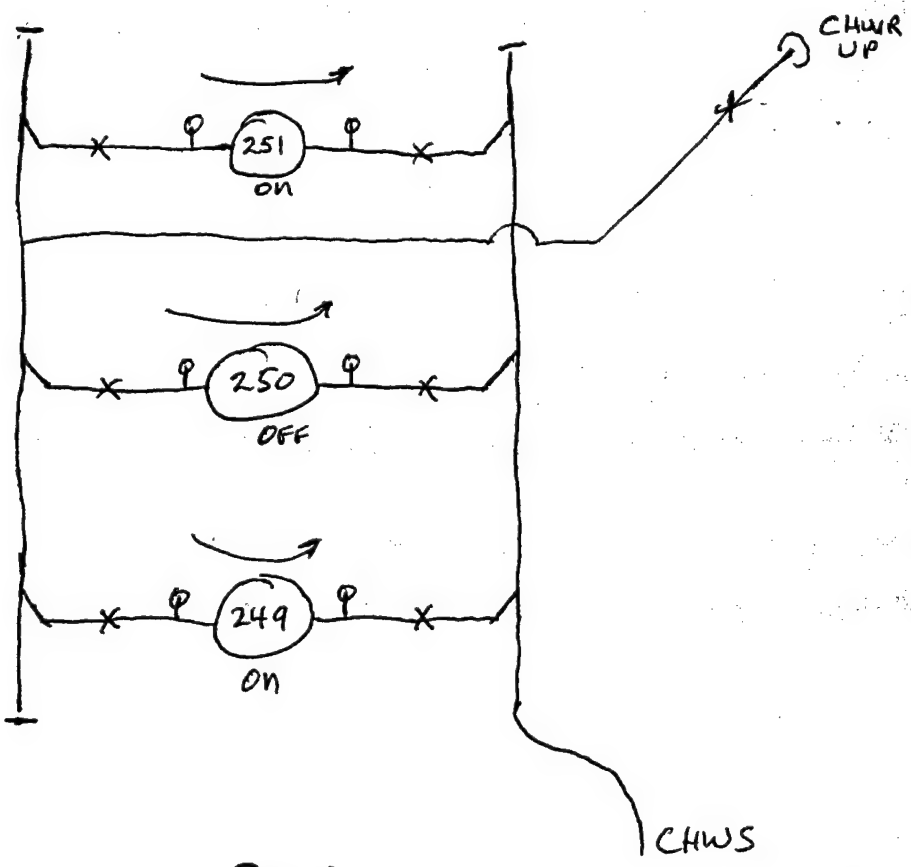
PUMP DATA:

#249 Peerless, M# 6AD 11, Pump # 343069, S.O.# 4HD4352, Impeller # 2671258, 2100 gpm, 1760 RPM, 65' TDH, 50 hp motor, DIA = 10¼, SP = 56 psi, DP = 104 psi

#250 Name plate painted over, looks just like #249. Peerless, 50 hp motor, SP = 56 psi, No gage for DP

#251 Peerless, all data same as #249. SP = 56 psi, DP = 100 psi

CHILLED WATER PUMPS
PLAN VIEW
1st FLOOR MECH. RM



ELECTRIC MOTOR DATA SHEET

Equipment ID. P #254 Location: 1ST FL. M/E Rm Function: Condensate Rtn Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.6 Phases 3 PF .8 kW (1) _____ Eff 88% RPM 1725

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: 1ST Fl. M/E RM. Function: Condensate Rtn Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.8 Phases 3 PF .8 kW (1) _____ Eff 88% RPM 1754

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. (158) HWSP#1 Location: Room # 2A1 Function: Hot water Supply Date: 10/26

Nameplate Data: HP 25 Frame 284T

Volts 460 Amps 30.5 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: Suction pressure 111
Discharge pressure 115

Equipment ID. (157) HWSP#2 Location: Rm 2A-1 Function: Hot Water Supply Date: 10/26

Nameplate Data: HP 25 Frame 284T

Volts 460 Amps 30.5 Phases 3 PF .80 kW (1) _____ Eff _____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: SUCTION pressure 111
DISCHARGE pressure 118

ELECTRIC MOTOR DATA SHEET

(156)

Equipment ID. HWSP#3 Location: Rm 2A-1 Function: HW Supply Date: 10/26

Nameplate Data: HP 25 Frame 284T

Volts 460 Amps 30.5 Phases 3 PF 0.8 kW (1) _____ Eff 88.5 RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

No pressure gauges

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #1 Location: Rm 2A1 Function: DHW Circ. Date: 10/25

Nameplate Data: HP 1½ Frame 56J

Volts 460 Amps 2.35 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 3450

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. #2 Location: Rm 2A-1 Function: DHW Circ Date: 10/25

Nameplate Data: HP 1½ Frame 56J

Volts 460 Amps 2.2 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. Vac. P #256 Location: 2nd fl. rm. #2A-1 Function: Vacuum Date: 10/25

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 18.7 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. Vac. P. #257 Location: 2nd fl. rm. #2A-1 Function: Vacuum Date: _____

Nameplate Data: HP 15 Frame 1

Volts 460 Amps 19.3 Phases 3 PF .8 kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. 271 Location: Rm 2A-1 Function: _____ Date: 10/25

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 19.8 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: Located on booster pump skid
Discharge pressure 120 #

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #274 Location: 2nd Fl. rm, 2A-1 Function: _____ Date: 10/21

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 19.8 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: LOCATED on Booster Pump SKID
Disch. Press. 79#

Equipment ID. _____ Location: 2nd Fl. rm #2A-1 Function: _____ Date: 10/24

Nameplate Data: HP 10 Frame 215T Code H

Volts 460 Amps _____ Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Nema design B motor
LOCATED ON Booster Pump SKID
Discharge Press. 80#

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: _____ Function: _____ Date: 10/24

Nameplate Data: HP 15 Frame 254T code g

Volts 460 Amps 20 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: Located on Booster Pump SKID 545, Press. Pump #SKID #108 DISCHARGE line press. #76

Equipment ID. _____ Location: _____ Function: _____ Date: 10/24

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Nema design B MOTOR

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Rm 3ϕ-2 3rd FLR Function: BOOSTER CWP Date: 10/25

Nameplate Data: HP 1½ Frame 213T

Volts 460 Amps 11 Phases 3 PF .8 kW (1) _____ SF Eff .115 RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: 82 PSI - Suction Line
EXIT 92 PSI DISHARGE Line
Temp. 44 Suction side
Server OR, AHU6

Equipment ID. _____ Location: Rm 3ϕ-2 3rd FLR Function: BOOSTER HWP Date: 10/25

Nameplate Data: HP 1½ Frame 145T CODE J

Volts 460 Amps 2.4 Phases 3 PF .8 kW (1) _____ SF Eff 1.15 RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: Server OR, AHU-6

ELECTRIC MOTOR DATA SHEET

220 & 221

Equipment ID. AIR. COMP Location: 3A-1 Function: MED. AIR Date: 1996-97

Nameplate Data: HP 7.5 Frame 213T

Volts 460 Amps 4.6 Phases 3 PF .85 kW (1) _____ Eff _____ RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 NEMA B

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: 3A-1 Function: MEDICAL AIR Date: 10-26-95

Nameplate Data: HP 15 Frame 215B

Volts 460 Amps 17.5 Phases 3 PF _____ kW (1) _____ Eff _____ RPM 3505

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 NEMA B

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

_____

_____

_____

_____

_____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

_____

_____

_____

_____

_____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #252 Location: Rm 5B-22 5TH FL. Function: Booster CW P Date: 10/25

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.6 Phases __ PF ____ kW (1) ____ SF Eff 1.15 RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: ____ Hrs/Wk ____

General condition/comments/Problems: SERVES ICU, AHU 5

Equipment ID. #154 Location: Rm 5B-22 Function: Booster HW P Date: 10/25

Nameplate Data: HP 1 Frame 143T

Volts 460 Amps 1.8 Phases 3 PF 0.8 kW (1) ____ Eff ____ RPM ____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: ____ Hrs/Wk ____

General condition/Comments/Problems: Serves ICU, AHU 5

CHILLER DATA SHEET

Equipment ID: #1 Location: Plant (West) Date: 10/26

Operator Name : _____ Phone : _____

Manufacturer Name: YORK Model: YT L6 M6 F2-CB C

Chiller Type: Electric Centrifugal, R11

Condenser Type: Air ____ Water X

Service Area: Hospital and "the hill", Capacity ≈ 1000 tons

Operating Data:

Evaporator Water Temps:	Design:	Supply	____ F	____ PSI	Return	____ F	____ PSI
	Measured:	Supply	51 F	56 PSI	Return	58 F	52 PSI
Condenser Water Temps:	Design:	Supply	____ F	____ PSI	Return	____ F	____ PSI
	Measured:	Supply	72 F	5 PSI	Return	72 F	5 PSI

Pump Data:

	Mfg	Model	HP	GPM	Suction Press	Discharge Press
Condenser:	Peerless	16AXB	125	3210		
Ch. Water:						

Are multiple chillers manifolded? Yes

Are pumps constant flow? Yes

Potential for conversion to variable flow? Good

Control System/Set points: _____

Maintenance Schedule: _____

O&M log available: (Yes) No Copies Obtained: (Yes) No

Heat Recovery Potential: (Condenser accessible, heat load nearby)

General Condition/Comments/Problems: Not running during survey.
Compressor model: YTK 144, SN: YCSM 075592

Sketch Chilled Water System _____

Sketch Condenser Water System _____

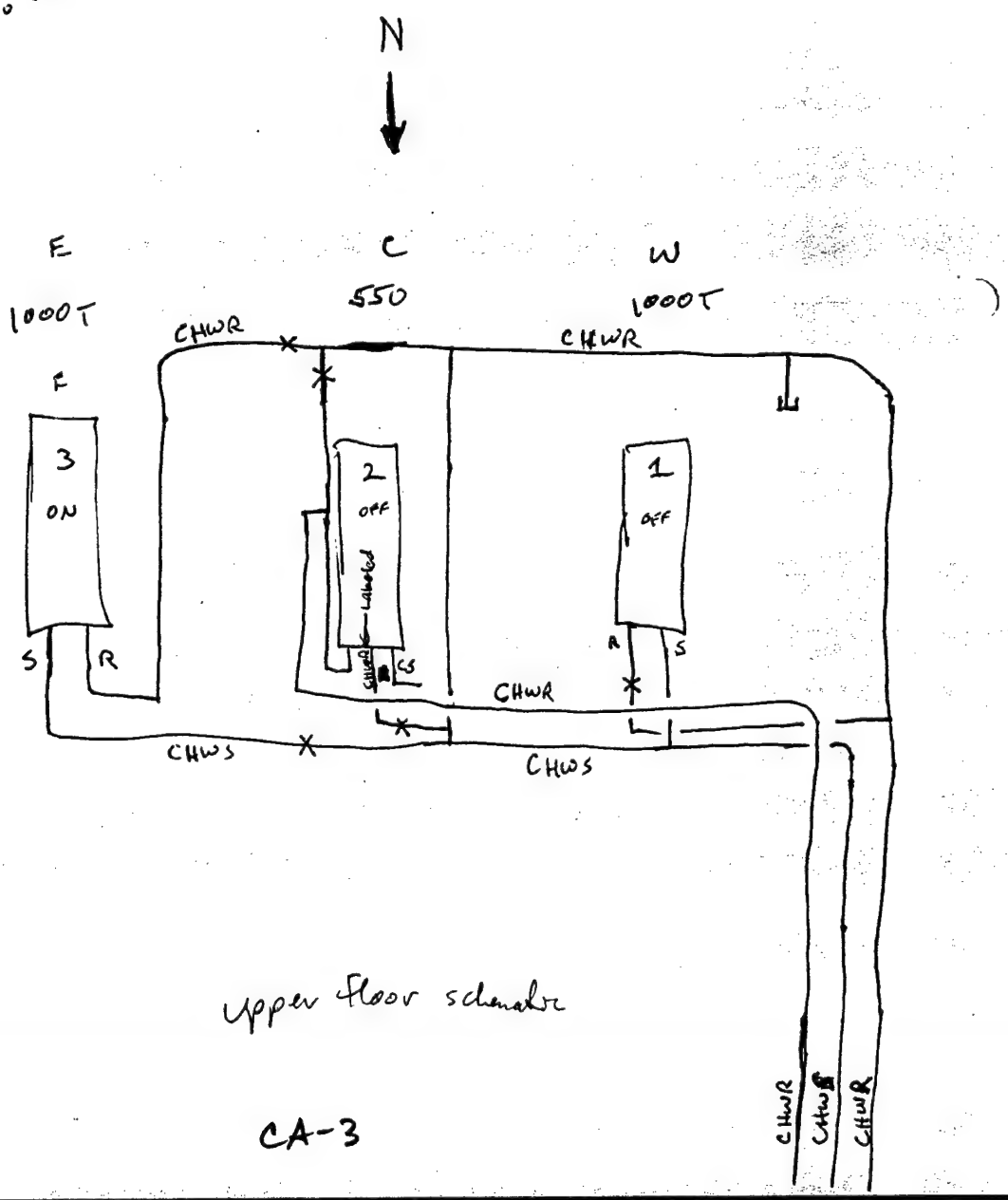
CA-2

CHILLER LAYOUT

Summer max load for chillers 1 & 3 is ~ 170% x 2000 tons ✓

#2 Will run on very low load ✓
trips off on High cond temp at 102 to 105°F ✓
10" recommended have 8" to cond/CT ✓
run. CT for old 470 ton steam turbine chiller. ✓

current project will replace the two Cent. chillers.



upper floor schematic

CHILLER DATA SHEET

Equipment ID: #2 Location: Plant (Center) Date: 10/26

Operator Name : _____ Phone : 206-791-6093

Manufacturer Name: TRANE Model: ABDL050FFB06AGBNBLJ00 (THERMACHILL)

Chiller Type: GAS ABSORPTION (or oil) MODEL: ABDL500, SN: L94M12443

Condenser Type: Air ____ Water X

Service Area: Hospital and "the hill" Capacity = 500 tons

Operating Data:

Evaporator Water Temps: Design:	Supply ____	F	____	PSI	Return ____	F	____	PSI
Measured:	Supply 72	F	0	PSI	Return 57	F	63	PSI
Condenser Water Temps: Design:	Supply ____	F	____	PSI	Return ____	F	____	PSI
Measured:	Supply ____	F	____	PSI	Return 76	F	0	PSI

Pump Data:

	Mfg	Model	HP	GPM	Suction Press	Discharge Press
Condenser:	Peerless	14LC156	40	1500		
Ch. Water:						

Are multiple chillers manifolded? Yes

Are pumps constant flow? Yes

Potential for conversion to variable flow? _____

Control System/Set points: Cooling tower water temp must be ≥ 72°F; set tower fans to come on at 84°F and off at 78°F or ① on 84/off 81 & ② on 82/off 78

Maintenance Schedule: Trane O+M manual ABDL-M-1
File # SV-RF-ABS-ABDL-M-1-791
Thermachill direct-fired absorption chiller

O&M log available: (Yes) No Copies Obtained: (Yes) No

Heat Recovery Potential: (Condenser accessible, heat load nearby)

Cool/Heat

Input (HHV) gas 5.917 mBH } MAX 1.972 mBH } MIN
oil 42.26 GPH } 14.09 GPH }

General Condition/Comments/Problems: CHW supply connected to CHW return line;
Elec: 180-220 v : Hi Temp Sol Pump 2.2 Kw / 13.0 A
Lo " " " " 1.1 " "
Refrigerant Pump 0.2 kw / 2.0 A
Purge pump 0.4 kw / 2.0 A
Cooling tower #2 was designed for 470 ton steam turbine chiller.
Cond line is 8" dia, mfg recommends 10" dia.

Sketch Chilled Water System _____

Sketch Condenser Water System _____

CHILLER #2

~~BUILDING~~ DATA NOTES

Survey by: W. T. Todd Date: 10-26-95

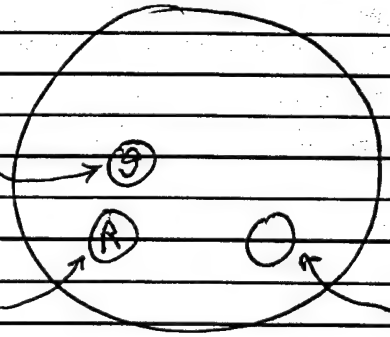
Notes & Comments: According to operator: Condenser water pump, piping, and cooling tower #2 are not adequately sized according to chiller specs.

This chiller will run at very low loads but then trips off on high condenser temperature at 102°F to 105°F.

Cooling tower #2 was designed for the old 470 ton steam turbine (125 psi) centrifugal chiller.

Condenser water piping is 8" diameter. Chiller condenser water supply inlet diameter is 10".

From Mfg. data: 500 tons



Catalog Performance Data for ABDL-500
- Minimum entering cooling water temp. = 72°F
- Condenser/Absorber flow rates ① min = 1157 gpm, Max = 2453 gpm
  ② 2117 gpm @ 54/44 chw & 85/95 cw
- Chilled water flow rates ① min = 584 gpm, max = 1466 gpm
  ② 1152 gpm @ 54/44 chw & 85/95 cw

Gas Abs. Chiller Test

3pm

CWS	25psi	25	78F	25psi	82°
CWR	11 psi	11	98F	11 psi	104°
CHWS	43 psi	46	53F	48psi	53°
CHWR	72psi	73	64F	75psi	60°

OAT = 58/47 SUBSTRACT ~2°F for bubble

4:10 pm 11/16/95

CWS	50 ps	52
CWR	76 psi	60
CNWS	25 psi	84
CNWR	11 psi	105

OAT = 58

3445 cfh nat gas flow

$3445 \frac{CF}{hr} \times 1030 \frac{Btu}{CF} \Rightarrow 3458350 \frac{Btu}{HR}$ input

3.458/5.917 ⇒ 60% Full load Fuel input

OAT ~ 48-50°F

CHILLER DATA SHEET

Equipment ID: #3 Location: Plant (East) Date: 10/26

Operator Name : _____ Phone : _____

Manufacturer Name: YORK Model: YT L6 M6 F2-CB C

Chiller Type: Electric Centrifugal

Condenser Type: Air ____ Water X

Service Area: Hospital and "the hill", Capacity ≈ 1000 tons

Operating Data: Design ΔP = 15.8' = 6.9 psig

Evaporator Water Temps:	Design:	Supply	43	F ____ PSI	Return	55	F ____ PSI
	Measured:	Supply	42	F 61 PSI	Return	46	F 64 PSI
Condenser Water Temps:	Design:	Supply	____	F ____ PSI	Return	____	F ____ PSI
	Measured:	Supply	64.5	F 26 PSI	Return	66.5	F 14 PSI

Pump Data: Design ΔP = 23.6' = 10.3 psig

	Mfg	Model	HP	GPM	Suction Press	Discharge Press	Pump
Condenser:	AURORA	VB572429	125	3200	____	____	
on Ch. Water:	Peerless	NA	100	____	30-35	____	120
		"	"		80		100

Are multiple chillers manifolded? Yes (off)

Are pumps constant flow? Yes

Potential for conversion to variable flow? _____

Control System/Set points: Leaving CHW set to 41.5°F; Panel readings - 73% FLA, CHWS @ 41.8°F, CHWR @ 52.3°F

Maintenance Schedule: (ALL CHILLERS)
- oil and filters changed by plant crew
- tubes cleaned ~ 1/year by plant crew
- Major repairs done by contractor

O&M log available: (Yes) No Copies Obtained: (Yes) No

Heat Recovery Potential: (Condenser accessible, heat load nearby)

General Condition/Comments/Problems: Only chiller running during survey; Compressor model: YTK 144, SN YCSM 075593. Operator said CHWS picks up about 2°F before it enters the hospital. Operating at 48% FLA when OAT was 47°F this morning; at 10am OAT was 77°F, FLA = 95%, CHWS = 43.0°F, CHWR = 55.4°F, gages read 44.2°F/59psi, 53.5°F/61 psi

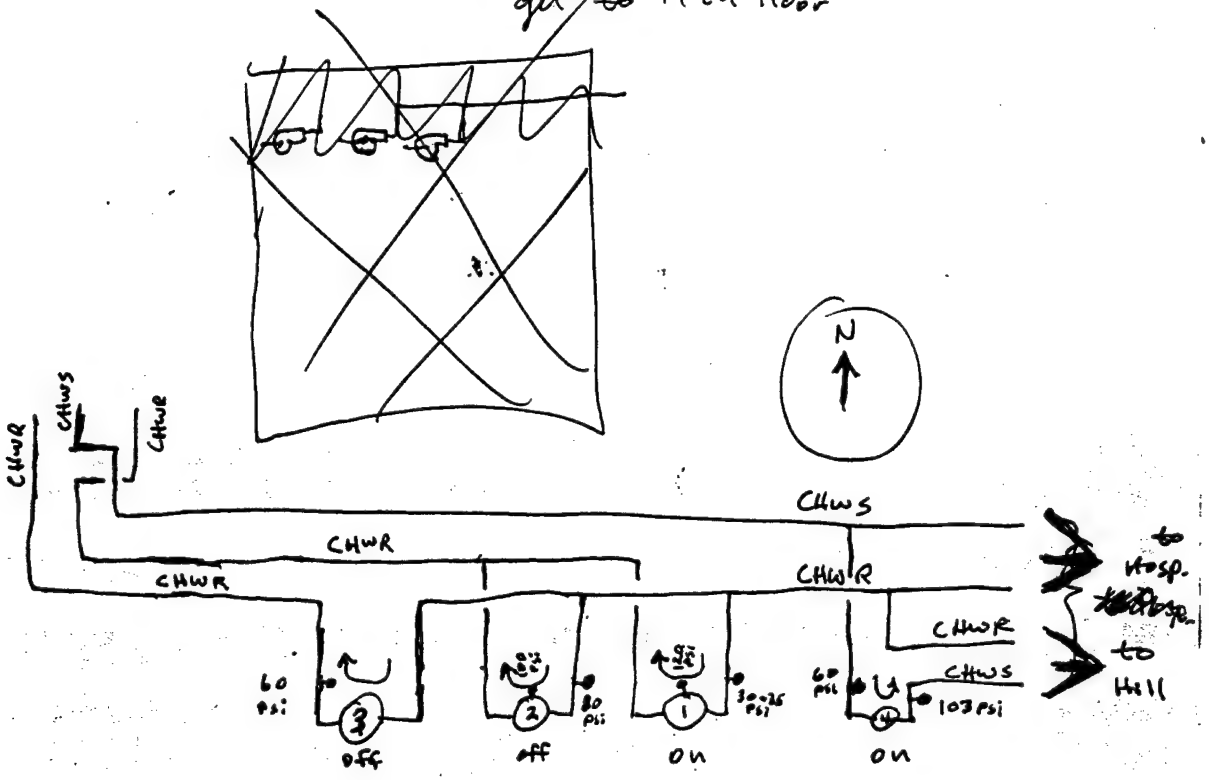
Sketch Chilled Water System ✓

Sketch Condenser Water System ✓

CENT. PLANT
CHILLED WATER PUMP LAYOUT

run #1 pump when cool (like today)
run #1+2 pumps when hot

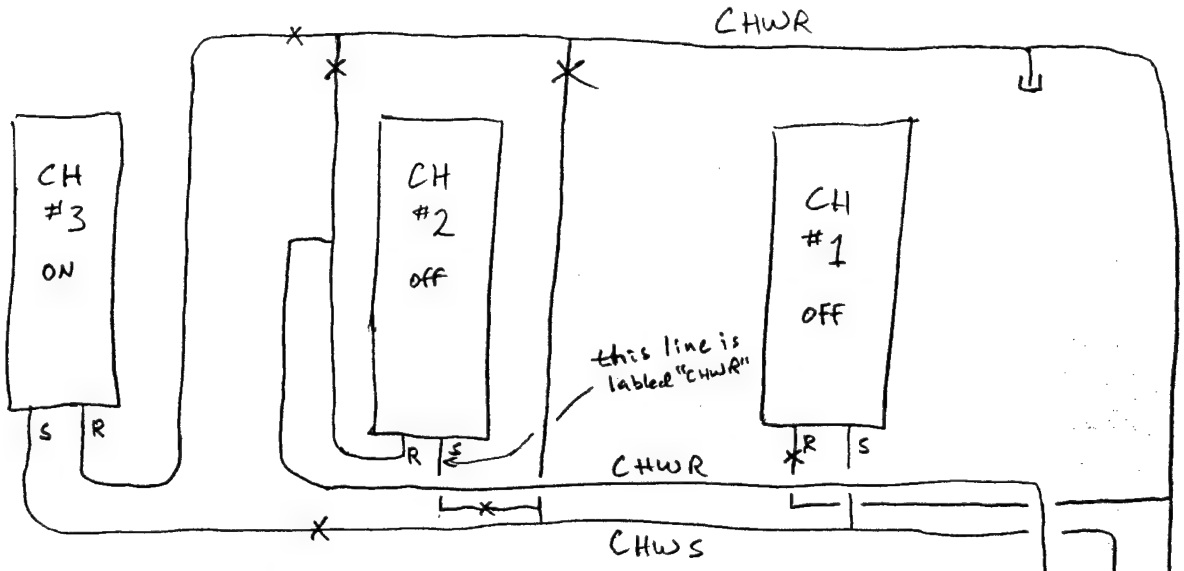
also have 3 booster pumps in hosp. to get CHWS to 14th floor



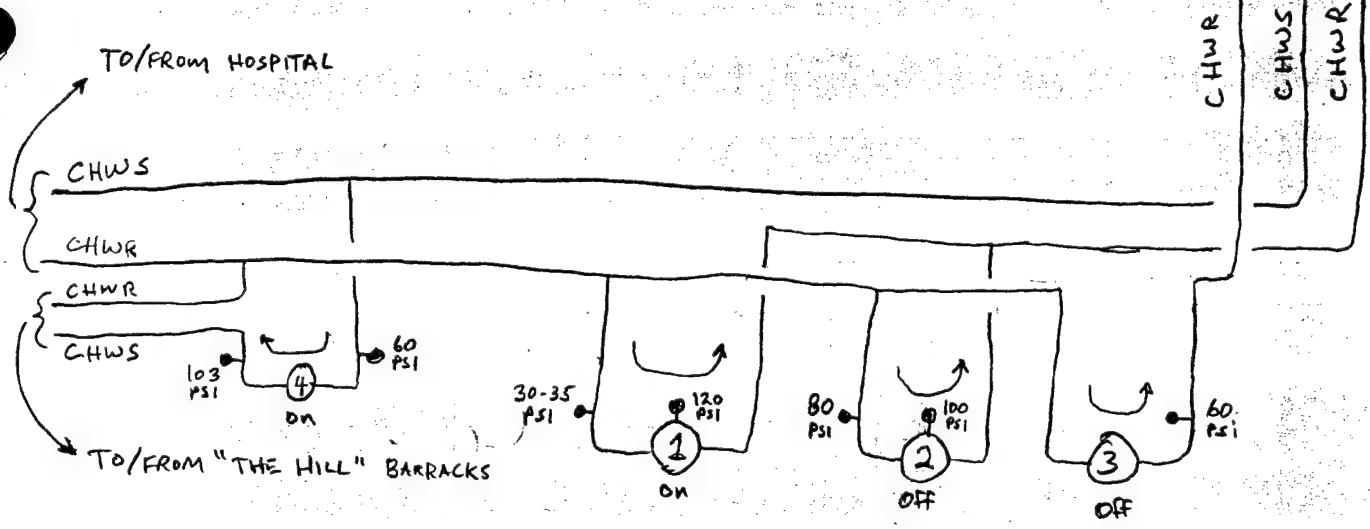
Lower floor schematic

Chillers 1,2+3	1 & 2	Peerless w/ 100 hp motor	✓
Chiller #2 CHWR+S	3	Peerless MFG 4AE11 Ser# 485667 V0642 (stamped on NP)	W/30 hp motor ✓
All chillers to "the Hill"	4	AURORA # 75-1413 B-1 TYPE 411 BF size 4 x 11C	W/20 HP motor ✓

N



UPPER FLOOR SCHEMATIC



LOWER FLOOR SCHEMATIC

CHILLED WATER FLOW DIAGRAM

Notes: CHW pump #1 runs when it is cool outside (like today). Pumps #1 and #2 run when the weather is hot. There are also 3 more CHW booster pumps in the hospital.

CHILLERS

~~BUILDING~~ DATA NOTES

Survey by: _____ Date: 10/26

Notes & Comments:

2 CHW lines to Hosp ✓

Pump #4 Small pump for "the Hill" Barracks ✓

Control Setting: LCHW T 41.5 setpoint ✓
73% FLA ✓

control panel reading { CHWS 41.8 °F picks up ~2°F before entering hospital ✓
CHWR 52.3 °F ✓

- Fill on generator CT is "grove", made from asbestos ✓

at 47°F OAT this morning 1 chiller was ~ 48% ✓

Gas Chiller: pump, pipe + tower are not adequately ✓
sized according to chiller specs. ✓

2100 kw gen at plant - chiller, ID fans, hospital ✓
800 kw gen in hospital. turn off elevator motors + fans ✓

- CHW pumps + CT's are not wired to generator ✓
so on power failure - can not provide cooling ✓

Trane O+M manual ABDL-M-1 ✓
File # SV-RF-ABS-ABDL-M-1-791 ✓
Thermochill direct-fired ~~Absorption~~ chiller ✓

1/22/96

CHW-P#1		Control R# CHWP1		P2		Chiller #3			
Suc	Disc	Suc	Disc	Disc	FLA%	inlet	outlet	CHWS	CHWR
28	95	64	~58	~58	45	SB 55 ②	SB 5.3 ②	41.5	52.1
28	100	64	68	69	40	50	48	41.5	49.4
28	105	64	79	81	40	61	59	41.2	49.0

① CHW also Flowing through Chiller #1
② CHW to Chiller #1 valved off.

Operator said 2 CHW pumps running in hospital basement

Chiller & CHW pumps off

25+	84	64	59	59		49	47

CHP#2 69 90

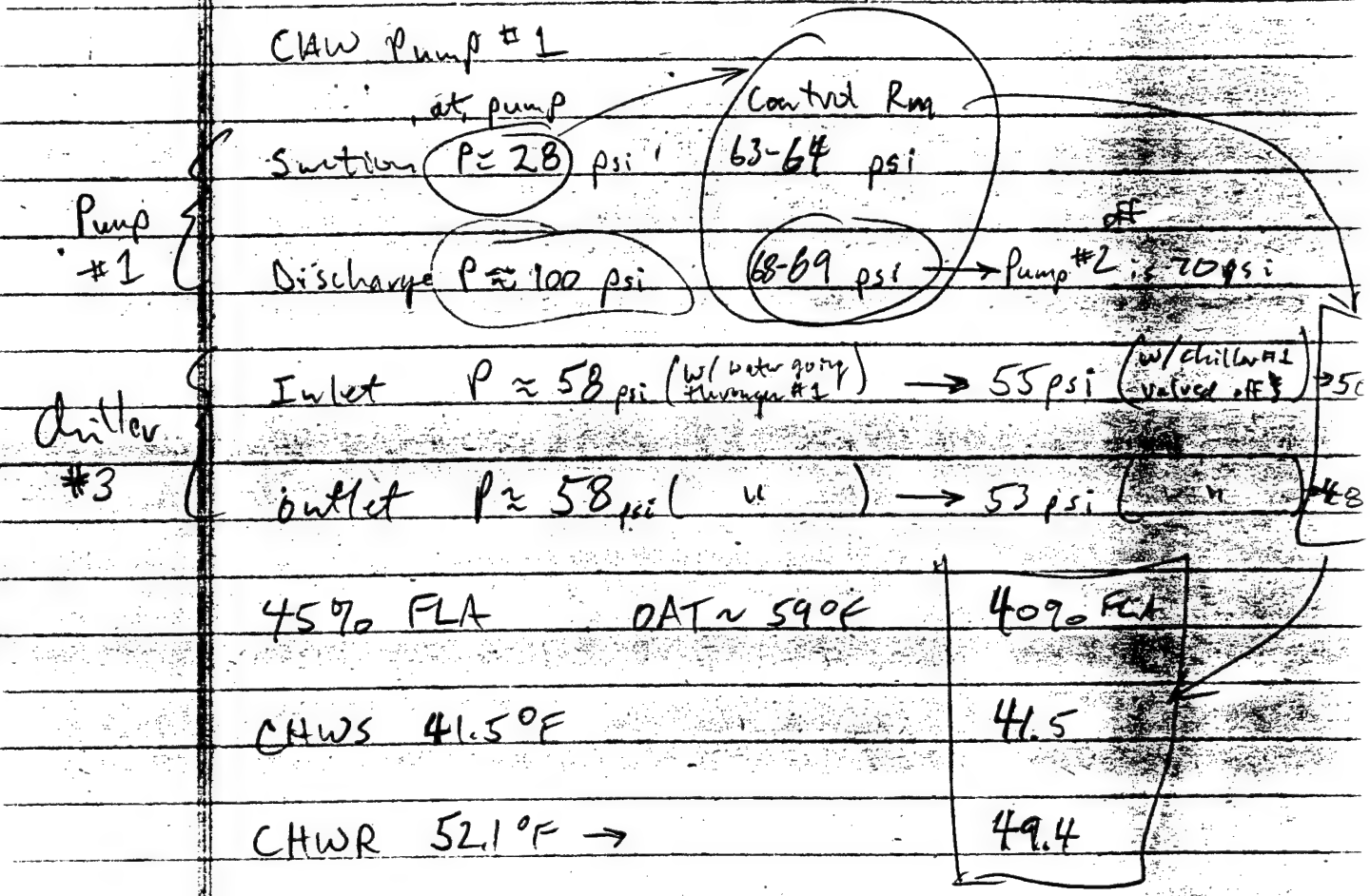
1/23/96

Control Rm gages
Return Pressure = 64 psi
#1 disch. press = 49 psi
#2 " " = 51 psi

CA-11

800-741-2014

~ 3pm



2 pumps running in hospital basement

- hooked up dp gage → went off scale of 200 in H_2O
- Switched gages (use 1 gage to read both ports) read 46 psi outlet + 56 psi inlet for about 1 minute then inlet dropped to 46 psi

CENTRAL PLANT

~~BUILDING~~ DATA NOTES

Survey by: W. T. Todd Date: 10-26-95

Notes & Comments: They have a 2100 KW generator in the plant and there is an 800 KW generator in the hospital.

The plant generator is wired to the chillers, ID fans and the hospital. The CHW pumps, ~~and~~ cooling tower fans, and condenser water pumps are not wired to the generator so when there is a power failure they can not provide chilled water to the hospital.

When Georgia Power requests them to curtail their demand, they run the chillers and some of the hospital on the generator. They are asked to shed loads many times during the hottest times of the summer. The hospital turns off some elevator motors and some fans.

The operator said the fill for the generator cooling tower is "gone". It is made of asbestos. They have not had overheating problems but he "does not want it to happen on his shift".

CHILLERS

Summer max load for the two elec. chillers (#1 & #3) is about 170% of a total of 2000 tons.

Chilled water pumps:

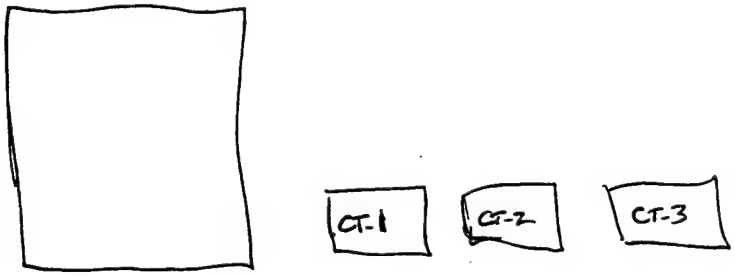
Pumps #1 & #2 serve all three chillers, for the hospital
Peerless pumps with 100 hp motors

Pump #3 serves chiller #2
Peerless, M# 4AE11, SN 485667, 106642 stamped on NP
30 hp motor

Pump #4 serves all chillers, for the "hill"
Aurora, M# 75-1413 B-1, TYPE 411 BF, SIZE 4x11C
20 hp motor

COOLING TOWER LAYOUT

GP: Very often during hottest time of summer ✓
Calls and tells Plant to shed loads to ✓
stay under a certain KW. They run the ✓
Chillers on the generator, pumps and ✓
CT's only wired to GP. ✓



1 Peerless
SIZE 12x12x20 ✓
3240 gpm ✓
TDH = 101 ft ✓
Model 16HXB ✓
1760 RPM ✓
SN 235803 ✓
125 hp motor (GE) ✓

2 PEERLESS
SIZE 10x10x16½ ✓
40 hp GE MOTOR ✓
1750 RPM ✓
SN: 343055 ✓
85 ft TDH ✓
14LC 1 STG (SIZE?) ✓
1500 GPM ✓

3 AURORA
VBS 72429 ✓ VERTI-LINE ROTATRON ✓
125 HP GE MOTOR ✓
3200 GPM ✓
100 ft HD ✓
1780 RPM ✓

Cooling Towers

Equipment ID: CT #1 Location: See sketch Date: 10-27-95
Manufacturer: Marley 2 Cell Model: #457-202 Double Flow
Type: Crossflow or Counterflow? _____
Percent Loaded: Summer: _____ Fall/Spring: _____ Winter: _____
Describe condition of:
Fill: Poor condition - algae growth - broken slats

Drift eliminators: Poor large amount of drift - raining

Water distribution: Basin supply valve broken - always flows Multiple leaks

Control System/Set points: ~80F Return water temp. to chiller See operating logs
Basin temp. Heated by steam coils

Maintenance Schedule: _____

O&M log available: Yes (No) Copies Obtained: Yes No

Heat Recovery Potential: (Condenser accessible, heat load nearby)
Check BFW temp.

General Condition/Comments/Problems: SN 457-7-1286-71, Cust. order #3
Marley Order #7-1286-71

PUMP DATA: Peerless model 16HXB, size 12x12x20, SN 235803
3210 gpm, 101 ft TDH, 1760 RPM, 125 HP motor (GE)

CT #1 has 2 Cells

Typ

Cooling Towers

Equipment ID: CT#2 Location: See sketch Date: 10-27-95
Manufacturer: Marley / Doubleflow Model: #372-101, 1 Cell
Type: Crossflow or Counterflow?
Percent Loaded: Summer: _____ Fall/Spring: _____ Winter: _____
Describe condition of:
Fill: Good - few breaks

Drift eliminators: Good

Water distribution: Distributed on deck well - many drain holes partially blocked with pipe scale - portions uncovered - large flow down sides and corners bypassing fill and raising basin/cws temp. - One large leak over basin wall at NE corner

Control System/Set points: Fan runs continuously now since absorber has trouble staging on line

Maintenance Schedule: Reworked Spring of '95 when absorber installed

O&M log available: Yes (No) Copies Obtained: Yes No

Heat Recovery Potential: (Condenser accessible, heat load nearby)
Check boiler FW temp.

General Condition/Comments/Problems: SN 372-7-1287-71, Cust Order #3, Marley Order # 7-1287-71, 96" fan diameter, 464 rpm, 25 hp fan motor, 44° final pitch angle. Designed for 470 ton steam (125psi) turbine centrifugal chiller. Leaking severely

PUMP DATA: Peerless model 14LC 1 STG ?, size 10 x 10 x 16½, SN 343055, 1500 gpm, 85 ft TDH, 1750 rpm, 40 hp motor (GE)
Looks good, but water temps. to chillers is higher than expected - see logs

Cooling Towers

Equipment ID: CT #3 Location: See sketch Date: 10-27-95

Manufacturer: Marley Model: 374-101?, 2 Cells
222-522

Type: Crossflow or Counterflow?

Percent Loaded: Summer: _____ Fall/Spring: _____ Winter: _____

Describe condition of:

Fill: Fair to poor - little breakage - moderate algae buildup

Drift eliminators: Fair - Several major breaks - No ext fins
Sides not curled

Water distribution: Basin make-up continuous flow -
Fair distrn

Control System/Set points: ~80F

Maintenance Schedule:

O&M log available: Yes (No) Copies Obtained: Yes No

Heat Recovery Potential: (Condenser accessible, heat load nearby)
Check BAW temp

General Condition/Comments/Problems: SN 374-7-1288-71, Cust. Order # 3, 7-7
Marley Order # 7-1288-71, 120" fan dia, 318 rpm, 40 hp, 55° FPA J.

SN 7-1141-86, GRDR # 16770 (cell 2) & 16778 (cell 1)
Face D " & B "

Pump Data: Aurora, Verli-line Rotatron, # V85 72429, 3200 gpm,
100 ft HD, 1780 rpm, 125 hp GE motor
Pump Leaks: assembly

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Cent. Plant Function: Chiller Comp. Date: 10/26

Nameplate Data: HP 870 Frame 5880 Y

Volts 4160 Amps 106 Phases 3 PF _____ kW (1) _____ Eff _____ RPM 3600

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

York Part # 024-24021-490

1-5119-51499-1-2

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #1 Location: Cent. Plant Function: Chilled water supply Date: 10/26

Nameplate Data: HP 100 Frame 404TS

Volts 460 Amps 123 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1770

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code F

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

DISCHARGE WTR. PRESS. 120 (at Pump)

SUPPY WTR. PRESS. 33

SERVES CENTRIFUGALS

Equipment ID. #2 Location: Cent. Plant Function: CWS Date: 10/26

Nameplate Data: HP 100 Frame 404TS

Volts 460 Amps 122 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1775

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code F

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

DISCHARGE Press. Water at Pump 100

SUCTION Press Water 80

SERVES CENTRIFUGALS

ELECTRIC MOTOR DATA SHEET

Equipment ID. #3 Location: Cent. Plant Function: CWS Date: 10/26

Nameplate Data: HP 30 Frame 286T

Volts 460 Amps 37.3 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code G

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

SUCTION 600 PSI

SERVES ABSORPTION (CH #2)

Equipment ID. _____ Location: Cent. Plant Function: Air Compressor Date: 10/26

Nameplate Data: HP 30 Frame 286T

Volts 460 Amps 38 Phases 3 PF _____ kW (1) _____ Eff _____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code F

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #4 Location: Cent Plant Function: CWS Date: 10/26

Nameplate Data: HP 20 Frame 256T Code G

Volts 460 Amps 25 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: Discharge P 100

Suction P 59

SERVES MEDICAL BARRACKS

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Cooling Tower

Equipment ID. _____ Location: CT #2 Function: Condenser W. P. Date: 10/26

Nameplate Data: HP 40 Frame B324TP16

Volts 460 Amps 50 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: CT #1 Function: Condenser Water P. Date: 10/26

Nameplate Data: HP 125 Frame B405TP20 Code G

Volts 460 Amps 144 Phases __ PF _____ kW (1) _____ Eff _____ RPM 1770

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: CT#3 Function: Condenser Pump Date: 10/26

Nameplate Data: HP 125 Frame 1405TP20

Volts 460 Amps 148 Phases 3 PF .8 kW (1) _____ Eff 92.4 RPM 1780

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 Code G

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: CT#3 Function: CT. FAN Date: 10/26

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

Fans inaccessible

ELECTRIC MOTOR DATA SHEET

Equipment ID. Cell 1 Location: Cooling Twr #1 Function: CT FAN Date: 10/26

Nameplate Data: HP 40 Frame 324T

Volts 460 Amps 52 Phases 3 PF ____ kW (1) ____ Eff ____ RPM ____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 CODE G

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: ____ Hrs/Wk As needed, always available

General condition/comments/Problems: ____

Equipment ID. ____ Location: ____ Function: ____ Date: ____

Nameplate Data: HP ____ Frame ____

Volts ____ Amps ____ Phases __ PF ____ kW (1) ____ Eff ____ RPM ____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: ____ Hrs/Wk ____

General condition/Comments/Problems: ____

ELECTRIC MOTOR DATA SHEET

Cooling Tower #1

Equipment ID. CELL #2 Location: TOP TOWER Function: FAN Date: 10/26/95

Nameplate Data: HP 40 Frame 324T

Volts 460 Amps 48 Phases 3 PF ____ kW (1) ____ Eff ____ RPM 1760

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 Code G

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: ____ Hrs/Wk ____

General condition/comments/Problems: ____

Cooling Twr 2

Equipment ID. CT 2 Location: CT FAN Function: 10/26 Date:

Nameplate Data: HP 25 Frame 284T

Volts 460 Amps 32 Phases 3 PF .18 kW (1) ____ Eff ____ RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

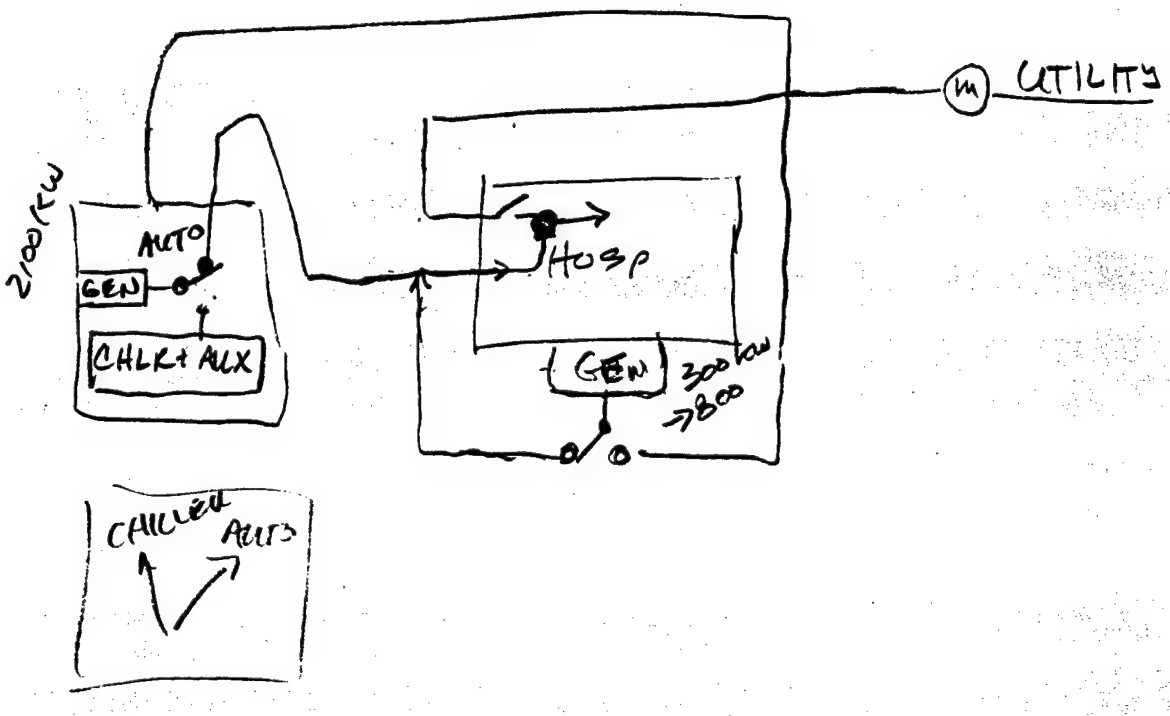
Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

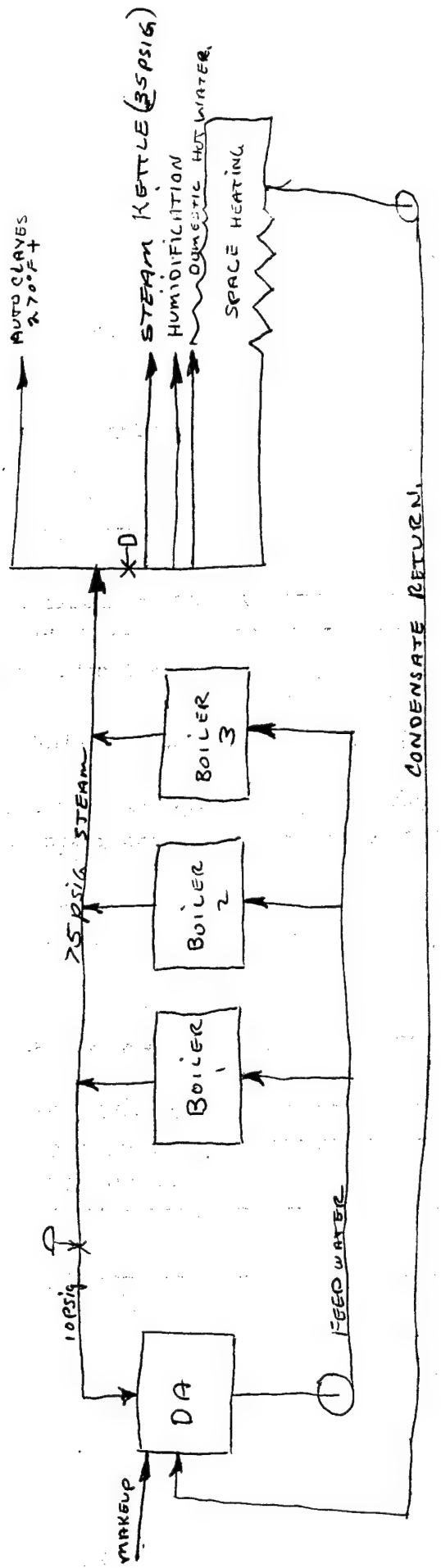
Hours of Operation: ____ Hrs/Wk ____

General condition/Comments/Problems: ____

GENERATOR SCHEMATIC



STEAM SYSTEM LAYOUT



BA-1

BOILER DATA SHEET

Boiler ID: 3/0/1 Location: FORT GORDON Date: 10/26/95

Operator Name: _____ Phone: 706-791-6093

Area or Loads: HOSPITAL & BARRACKS

Boiler Specifications:

Mfg. & Model No.: INTERNATIONAL ; MO. NO. 1BD91; SER. NO. M3709

Fuel(s) Type Used: GAS / #2 OIL Input: 20MMBTU/HR. GAS, 19MMBTU/HR OIL

Capacity ~~(Mbh or~~ lbs/hr): 15,400 GAS, 14600 OIL Pressure (psig): 125 DESIGN; 75 OPER.

Stack Gas Temperature: 390 F Excess Air (%): NOT MEASURED

Boiler Efficiency: 78-82 % Source: MFGR PERFORMANCE (ATTACHED)

Burner Type: PEABODY ENGINEERING - GAS RING, OIL GUN, SPINNER VANE

Soot blower ?: COPES VULCAN - 1 PER BOILER - ROTARY TYPE.

FD Fans ?: 1 Size SEE DATA SHEET Motor Data 10 HP.

ID Fans ?: 1 Size _____ Motor Data _____

Variable Speed Drives ?: NO

Economizer ?: YES SOOT BLOWER INCLUDED

Air preheater?: NO

O2 trim controls?: YES - DEACTIVATED

Steam-driven aux's?: NONE

Blowdown frequency and amount: ONCE PER DAY FOR ONE MIN.

Heat recovery potential? _____

Condensate return %: HIGH - SEE MAKE-UP DATA SHEETS

Condition of boiler/piping insulation, lines and traps?: GENERALLY GOOD

VALVE JACKET REQUIRED ON MAINSTEAM VALVE. INSULATE ATOM. STM. PIPING

Operation Schedule: hr/da: _____ da/wk: _____ mn/yr: _____

Percent Loaded - Summer: _____ Fall/Spring: _____ Winter: _____

Is Boiler Plant Capacity Adequate ?: _____

Automatic Control System/Set points ?: _____

Maintenance Schedule: AS NEEDED - WELL MAINTAINED

Condition of tubes?: REPORTED AS EXCELLENT - NO HISTORY OF TUBE LEAKS - MINIMAL SCALE REPORTED.

Operating Log Available ? Y Copies obtained ? Y

O & M Log Available ? N Copies Obtained ?: N

Chemical Treatment ? SO_3, PO_4, NaOH, DESCALING AGENT

Feed Water Preheated ? Y How? DEAIRATOR - 5-10 psig

General Condition/Comments/Problems : O_2 CONTROLS SHOULD BE RE-CONNECTED. ECONOMIZER TO BE REMOVED - BAD INSTALLATION.

Sketch Steam/Hot Water System BA-2

BOILER DATA SHEET

Boiler ID: 3/0/2 Location: FORT GORDON Date: 10/26/95

Operator Name: _____ Phone: 706-791-6093

Area or Loads: HOSPITAL & BARRACKS

Boiler Specifications:

Mfg. & Model No.: INTERNATIONAL; MOD. NO. 1BD91; SER. NO. ~~M3709~~ M3710

Fuel(s) Type Used: GAS/OIL (#2) Input: 20 MMBTU/HR GAS; 19 MMBTU/HR OIL

Capacity (~~Mbh or~~ lbs/hr): 15,400 935 / 14,600 OIL Pressure (psig): 125 DESIGN, 75 OPER.

Stack Gas Temperature: 390 F Excess Air (%): NOT MEASURED

Boiler Efficiency: 78-82 % Source: MFGR. PERFORMANCE (ATTACHED)

Burner Type: PEABODY ENGINEERING - GAS RING, OIL GUN, SPINNER VANE

Soot blower ?: COPES VULCAN - 1 PER BOILER - ROTARY TYPE

FD Fans ?: 1 Size DATA SHEET Motor Data 10

ID Fans ?: 1 Size _____ Motor Data _____

Variable Speed Drives ?: NO

Economizer ?: YES - SOOT BLOWER INCLUDED - POOR ECON INSTALLATION

Air preheater?: NO

O2 trim controls?: YES - DEACTIVATED

Steam-driven aux's?: NO

Blowdown frequency and amount: ONCE PER DAY - 1 MIN.

Heat recovery potential? _____

Condensate return %: HIGH - SEE MAKEUP DATA SHEETS.

Condition of boiler/piping insulation, lines and traps?: SOOT BLOWER SUPPLY VALVE MISSING; ATOMIZING STEAM PIPING - INSULATE; GENERALLY GOOD CONDITION.

Operation Schedule: hr/da: _____ da/wk: _____ mn/yr: _____

Percent Loaded - Summer: _____ Fall/Spring: _____ Winter: _____

Is Boiler Plant Capacity Adequate ?: YES

Automatic Control System/Set points ?: _____

Maintenance Schedule: AS NEEDED - WELL MAINTAINED

Condition of tubes?: REPORTED AS EXCELLENT - NO HISTORY OF TUBE LEAKS. MINIMAL SCALE REPORTED.

Operating Log Available ? YES Copies obtained ? YES

O & M Log Available ? NO Copies Obtained ?: NO

Chemical Treatment ? SO_3, PO_4, NaOH, DE SCALING AGENT.

Feed Water Preheated ? YES How? DEAIRATING HEATER - 5-10 psig

General Condition/Comments/Problems: O2 CONTROLS SHOULD BE RE-CONNECTED ECONOMIZERS TO BE REMOVED - BAD INSTALLATION

Sketch Steam/Hot Water System BA-3

BOILER DATA SHEET

Boiler ID: 3/0/3 Location: FORT GORDON Date: 10/26/95

Operator Name: _____ Phone: 706-791-6093

Area or Loads: HOSPITAL & BARRACKS

Boiler Specifications:

Mfg. & Model No.: INTERNATIONAL ; MOD. NO. IBD91 ; SER. NO. M3711

Fuel(s) Type Used: GAS / OIL (#2) Input: 20 MMBTU/HR GAS ; 19 MMBTU/HR OIL

Capacity (~~Mbh or~~ lbs/hr): 15,400 GAS / 14,600 OIL Pressure (psig): 125 DESIGN - 75 OPER.

Stack Gas Temperature: 390 F Excess Air (%): NOT MEASURED

Boiler Efficiency: 78-82 % Source: MFGR PERFORMANCE (ATTACHED)

Burner Type: BEABODY ENGINEERING - GAS RING, OIL GUN, SPINNER VANE

Soot blower ?: COPES VULCAN - 1 PER BOILER

FD Fans ?: 1 Size DATA SHEET Motor Data 10 HP

ID Fans ?: 1 Size _____ Motor Data _____

Variable Speed Drives ?: NO

Economizer ?: YES - SOOT BLOWER INCLUDED - POOR INSTALLATION - ECON. TO BE REMOVED

Air preheater?: NO

O2 trim controls?: YES DEACTIVATED

Steam-driven aux's?: NO

Blowdown frequency and amount: ONCE PER DAY - 1 MIN.

Heat recovery potential? _____

Condensate return %: HIGH SEE MAKEUP DATA

Condition of boiler/piping insulation, lines and traps?: GENERALLY GOOD

INSULATE ATOMIZING STEAM PIPING.

Operation Schedule: hr/da: _____ da/wk: _____ mn/yr: _____

Percent Loaded - Summer: _____ Fall/Spring: _____ Winter: _____

Is Boiler Plant Capacity Adequate ?: YES

Automatic Control System/Set points ?: _____

Maintenance Schedule: AS NEEDED

Condition of tubes?: REPORTED EXCELLENT - NO TUBE LEAK HISTORY - MINIMAL SCALE REPORTED

Operating Log Available ? YES Copies obtained ? YES

O & M Log Available ? NO Copies Obtained ?: NO

Chemical Treatment ? SO_3, PO_4, NaOH, DESCALING AGENT

Feed Water Preheated ? YES How? DEAIRATING HEATER 5-10 PSIG.

General Condition/Comments/Problems : O_2 CONTROLS SHOULD BE RE-CONNECTED. ECONOMIZERS TO BE REMOVED - BAD INSTALLATION.

Sketch Steam/Hot Water System BA-4

ELECTRIC MOTOR DATA SHEET

Equipment ID. 1 Location: Cent. Plant Function: Boiler FW Pump Date: 10/26

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 20.0 Phases 3 PF 0.8 kW (1) _____ Eff _____ RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. 2 Location: Cent. Plant Function: Boiler FW Pump Date: 10/26

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 20.0 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code G

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. BLR FDWTR. Pump #3 Location: Cent. Plant Function: Boiler FW Pump Date: 10/26

Nameplate Data: HP 15 Frame 254T

Volts 460 Amps 20.0 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #1 Location: Cent. Plant Function: Blr. Condensate Pump Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 7.1 Phases 3 PF ____ kW (1) ____ Eff ____ RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: ____ Hrs/Wk ____

General condition/comments/Problems: ____

Duplicate for 52 CONDENSATE Pump Skid

Equipment ID. #2 Location: Cent PLT. Function: Blr. Condensate Pump Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 7.1 Phases 3 PF ____ kW (1) ____ Eff ____ RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: ____ Hrs/Wk ____

General condition/Comments/Problems: ____

Duplicate for 52 CONDENSATE Pump Skid

ELECTRIC MOTOR DATA SHEET

Equipment ID. 1 Location: Central Plant Function: BFW XFR Pump Date: 10/26

Nameplate Data: HP 3 Frame 182T

Volts 460 Amps 4.3 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1725

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code J

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. 2 Location: Central Plant Function: BFW XFR Pump Date: 10/26

Nameplate Data: HP 3 Frame 182T

Volts 460 Amps 4.3 Phases 3 PF .8 kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code J

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Centrplant Function: Boiler ID FAN Date: 10/26

Nameplate Data: HP 10 Frame 215T

Volts 460 Amps 13.2 Phases 3 PF .8 kW (1) _____ Eff _____ RPM 1750

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. _____ Location: Cent. Plant Function: Shop Air Date: 10/26

Nameplate Data: HP 1/2 Frame 56

Volts 230 Amps 4.1 Phases 1 PF .8 kW (1) _____ Eff _____ RPM 1725

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: _____ Hrs/Wk _____

General condition/comments/Problems: _____

Equipment ID. _____ Location: _____ Function: _____ Date: _____

Nameplate Data: HP _____ Frame _____

Volts _____ Amps _____ Phases __ PF _____ kW (1) _____ Eff _____ RPM _____

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000

Measured: Phases __ kW _____ RPM (2) _____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: _____ Hrs/Wk _____

General condition/Comments/Problems: _____

ELECTRIC MOTOR DATA SHEET

Equipment ID. #1 Location: Cent Plant Function: Air Compressor Date: 10/26

Nameplate Data: HP 3 Frame 184T

Volts 460 Amps 6.8 Phases __ PF ____ kW (1) ____ Eff ____ RPM 1745

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code J

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of calculated kW

Hours of Operation: ____ Hrs/Wk ____

General condition/comments/Problems: ____

Duplex Air Compressor

Equipment ID. ____ Location: Cent Plant Function: Air Compressor Date: 10/26

Nameplate Data: HP 5 Frame 184T

Volts 460 Amps 6.9 Phases 3 PF ____ kW (1) ____ Eff ____ RPM 1740

(1) kW = volts * amps * sqrt(# phases) * 0.85 / 1000 code J

Measured: Phases __ kW ____ RPM (2) ____

(2) Not necessary to measure RPM unless measured kW < 50% of nameplate kW

Hours of Operation: ____ Hrs/Wk ____

General condition/Comments/Problems: ____

Duplex Air Compressor

[redacted] NOTES

Survey by: _____ Date: 10/25/95

Notes & Comments: Missing Insulation in Boiler Area

LINE SIZE	LENGTH	LOCATION
1"	18'	BOILER FRONT - STEAM
2"	10'	FEED WATER
2"	6'	BFP DISCHARGE
2½"	10'	SOOT BLOWER LINE
3"	10'	BFP SUCTION

Generators pick up hospital automatically, but not the plant. Chillers and some aux's can be manually switched to 2100 KW generator

Rob Callahan

#25910 Post Heat & Cool Plant

Current contract to install VSD - pumping
Would like PF correcting capability

#25330 Newer, smaller one has auto-PF correction